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Original Communications.

THE REALITIES OF RABIES CANINA AND RABIES HUMANUM.

BY G. ARCHIE STOCKWELL, M.D., F.Z.S.,
PORT HURON, MICHIGAN.

THIRTY centuries of progress appear to have inculcated little that is new regarding the dread malady known as rabies, or lyssa, and incorrectly termed *hydrophobia*.*

Aside from speculative theories, the literature of the subject is wholly repetitious,—collations from the writings of Aristotle, Cælius Aurelianus, Dioscorides, Democritus, and other pre-Christian authors,—embracing the superstitions and mysticisms of the vulgar masses of ancient Egypt, Greece, and Rome. Again, less than one-fiftieth of one per cent. of the medical profession of the world ever encounter the disease, real or supposed, in either animal or man; and these few, brought in contact therewith unexpectedly, when at most it is a matter of a few hours, obtain no opportunities for the acquisition of knowledge that is either practical or critical. Still more reprehensible is the ignorance that, venial and excusable *per se*, is made criminal

* The word ὑδροφοβια was first employed by Celsus somewhere about A.D. 170 to express a *symptom*. The jugglery whereby it has been made to do specific duty in the case of a disease, is alike reprehensible and distasteful, being provocative of no little error.

by being transferred to the columns of an irresponsible and sensational press.

It is not within the scope of the present paper to either affirm or deny, save perhaps by inference, the existence of rabies as a disease *sui generis*, or to specially meddle with the claims of Pasteur and his friends.* Instead, with a view of shedding more light upon a subject deeply shrouded in mystery and superstition, and in some measure allaying the senseless alarm that accrues to the laity and the profession alike, owing to the wide-spread publicity given cases that, if not altogether spurious, are at least of most doubtful character, I offer a few incontrovertible facts.

When Sydney Smith was told a certain Right Reverend Prelate was unable to attend a dinner-party on account of a bite received from a ferocious dog, he suggested he would like to "hear the dog's account" of the matter. Echoing this, Professor Taylor, in a recent address before the Medico-Chirurgical Society of Nottingham, England, remarked,—

"I have often wondered what our canine friends and poorer relations must think of us, now we are all laboring under a hydrophobia panic,—a panic founded, I won't say upon ignorance, but necessarily from very imperfect acquaintance with the subject, fostered by the most extraordinary delusion of modern times, and aggravated by efforts at repression. Formerly a mad dog was as rare as a black swan. It is an old saying that we never have more than one in England at a time (Mayhew); and we have for years together been without any at all. But now, under the influence of sensation, hydrophobia has become nearly as common as measles,—every village appears to have a case or two,—and each dog-owner looks askance at his poodle, expecting him to go mad on the morrow."

Sixty thousand dogs have recently been slaughtered in a very brief space of time in the city of London alone. For months nearly two a day have been beaten to death in the island of Great Britain by irresponsible persons (and as many more, perhaps, in America), and all upon the ground that they were then and there stark, raving mad. So great has been the glut of canine carcasses in some instances and localities that it was found impossible to dispose of them otherwise than by cremation, thereby depleting the exchequer of the United Kingdom at the rate of seven thousand pounds, or three thousand five hundred dollars, per annum, while the realizable property destroyed is beyond all measure of computation !† And yet during all this time the British Hydrophobia Commission were unable to secure a definitely rabic canine for purposes of experimentation !‡

Mr. Pavitt, Superintendent of the "Home for Lost and Starving Dogs," in Battersea, Park Row, London, during his seventeen years of experience, *never saw a case of rabies.* Mr. Scoberio, Secretary of the same Institution, writing to the *Standard* newspaper, declares the same, adding that, notwithstanding *ninety five thousand* dogs seized in the street and brought by hand to the police-stations and the frequency of severe bites, hydropho-

* (See THERAPEUTIC GAZETTE, October, 1886.) The report of the British Hydrophobia Commission is now known to be the work of but one man, and that a pronounced partisan,—Mr. Victor Horsley. The sum of the whole report, which, moreover, is self-contradictory, and calculated to mislead, amounts to this: *If* the rabbits inoculated by Pasteur have rabies, then the Pasteurian method has a basis of truth. Unfortunately, however, for Mr. Horsley, the symptoms defined in these animals as rabies, chief of which is ascending paralysis, may be procured by intradural inoculation of any foreign material, septic or otherwise, even healthy spinal cord. This has been repeatedly proven by experimenters in all parts of Europe and America; and even Pasteur admits the rabbit is not a test animal for experimentation. Mr. Horsley, when asked by Dr. Spitzka what were the symptoms of rabies in the Leporidæ, could not reply, but referred Dr. Spitzka to Pasteur; and Dr. Biggs, of the Carnegie Laboratory of N. Y., who witnessed Pasteur's experiments, affirms decisively that these animals possess no characteristic signs of rabies! Again, such eminent scientists (backed by thorough pathological knowledge, such as Pasteur has never possessed) as Von Frisch of Vienna, Gaultier of Lyons, Amoroso and Rienzi of Naples, Spitzka of New York, Bouillier of Paris, and Van der Corput of Belgium, have conclusively proven the condition induced in the rabbit *is not rabies.* Of the standing of Pasteurism, it is only necessary to say its claims have been heralded chiefly by an irresponsible secular press, aided by a few partisans; that Germany ignores it; the Belgian Commission denounces it; Italy rejects *in toto;* the Austrian Government, thoroughly disgusted, has withdrawn its support; and even the Parisian Municipal Council has proposed to revoke its previous votes in favor of a Pasteur Institute. Summed all up, the successes, whether claimed by Mr. Horsley or other of Pasteur's supporters, all emanate from the *Laboratoire de Rage* and Pasteur himself, who persistently denies any information or data that will admit of careful comparative investigation!

† Dogs *are* property. Statistics show the value of these animals in the United Kingdom to be an average of *one pound* sterling per head. By one mob epidemic a personal friend of the writer lost a canine for which he had repeatedly refused one hundred and twenty-five pounds,—approximately, six hundred and twenty dollars.

‡ Address of Professor Charles Bell Taylor before the Nottingham Medico-Chirurgical Society, 1887.

bia has never occurred among the members of the metropolitan police, as the records of that body testify. The *Reports* of the "Home" also show that a stream averaging fifteen hundred canines per month* is perpetually passing through the Institution, with four hundred constantly kept in kennels; that bites, many of them very dangerous, and in all parts of the body, are of constant occurrence; yet no untoward result has ever accrued to any of the employés! The head-keeper has been bitten several hundred times without injury. Altogether, *two hundred thousand* dogs have been brought to the "Home," most of them starving, stray, or vagabond, and of these many hundred exhibited evidence of disease, and were most circumstantially accused of rabies; yet *without exception*, when isolated and properly fed and cared for, *all recovered!* Under such circumstances and testimony, we may well ask: What is rabies, or what is it believed to be?

When fairly narrowed down to pertinent facts, rabies appears primarily as a disease of the Canidæ; secondarily, and to less extent, of other *true* Carnivoræ. Infectious, it is not contagious; that is to say, it can be communicated only by the bite of some carnivorous or purely meat-eating creature, bitten by another of the same class, that has been wounded by a third, in turn infected by a fourth, and so on. And to procure this infection the disease must not only be fully developed in the *offender*, but the virus brought in direct contact with the circulating system of the *offended;* under all other circumstances the poison is innocuous or inert, and may with impunity be applied to sound cuticle, swallowed, or the flesh and products of the suspected animal safely employed as food.†

The *saliva* is the only factor producing the malady, since it alone contains the virus, and inoculation by other and assumed rabic materials is provocative of no phenomena that may not with equal certainty be induced by other septic and non-rabic substances.‡ This has repeatedly and conclusively been proven by the ablest pathologists of the age,—by Rienzi and Amoroso of Naples, Von Frisch of Vienna, Spitzka and Biggs of New York, and Gaultier of Lyons, the latter justly termed "one of the most thorough and candid scientists" of the day. All discovered that while the saliva of rabic dogs might be employed to infect rabbits and guinea-pigs, the same product, as obtained from these creatures, *could not* in turn communicate the disorder, even among themselves!

Again, experience and experimentation, aside from the foregoing, has time and time again demonstrated that rabic poison can be transmitted only *by* or *through* the true Carnivoræ,—creatures dependent upon animal foods for sustenance, and about whose teeth and jaws may linger decaying and putrid particles capable of inducing fatal blood-poisoning (septicæmia). Hence wounds inflicted by meat-eaters, even should they terminate disastrously, are not necessarily, neither are they to be presumed, rabic. This leads to the inevitable conclusion that the disorder termed hydrophobia, or rabies, in the great majority of instances, is spurious, and either the development of some other malady, such as tetanus or septicæmia, or of functional disturbance of nerve-centres resultant upon the fears and imaginings of the patient and friends, or *both!*

If we lay a wafer upon a bit of highly-polished metal, a razor-blade for instance, and then breathe thereon, subsequently repeating the process with the wafer removed, the outlines of the latter reappear, and this even though months may have intervened since the original experiment. If, then, an inert object like steel is so sensitive and capable of recording impressions, how much more so must needs be the nervous ganglia of Primates, especially designed for this purpose, and, moreover, to *transmit* the faintest of such impressions! And when we fully consider the influences of fear, anxiety, joy, and shock upon the nervous system,—that persons have died, suddenly, or in a few moments or hours, from these causes; or by the unexpected loss of friends or possessions, in a moment of robust health have become raving maniacs, hopeless idiots, or paralytics, thrown into convulsions, and driven to suicide,—we can readily understand how cases of hydrophobia are induced and multiplied under epidemic influences, es-

* See most interesting paper from the pen of Dr. Charles W. Dulles in *Lippincott's Magazine* for August, 1883.

† The writer, during a series of experiments, developed all the symptoms alleged to mark hydrophobia, or rabies, in rabbits by the intradural inoculation of healthy saliva taken from various creatures, man included; also by tartar from human and canine teeth!

‡ Apropos of the ignorance manifested by medical men at large so far as "hydrophobia" is concerned, I recently heard a venerable member of the profession—a gentleman of high professional standing and eager in pathological research—express his "*surprise*," when a dairyman's cow had been pronounced rabic, that the owner and the consumers of the milk had manifested no evidence of the malady!

pecially if an animal can be secured as a possible factor. As medical science progresses, and further insight is had into the phenomena of multiple maladies manifested through, or having their origin in, the vital centres, the conclusion is rapidly being forced upon thinking and observant minds that so-called *hydrophobia* is merely a development of irritated nerves arising from numerous and variable causes, wholly devoid of elements of specificity, and dangerous above other maladies of like origin only in proportion to the fear it inspires. It is well understood by pathologists that changes *may*, and *do*, take place within the brain and spinal cord, so affecting a single nerve of sensation as to procure precisely the same manifestations as would be induced by irritants introduced from without ;* and no physician, however able or experienced, or neurologist, however talented or expert, has ever been able to fathom the mysterious workings of the nervous system under profound agitation of the mind, or to discover what influence that perturbed mind may, directly or indirectly, exert upon morbific elements already implanted within the economy.

The proportion of canines, much less of humanity, that develop rabies as the sequel of wounds inflicted by other and *known* rabic Carnivoræ, is extremely small : by gross computation less than five per cent.; a fact in itself suspicious when compared with other and definitely infectious maladies. The poodle of the famous pathologist Von Hertwig was thus inoculated nine times in vain ; at the Veterinary School of Lyons dogs were experimentally bitten as high as *thirteen* times with like result ; and abundant evidence might be cited wherein animals, wounded all the way from six to sixty times, recovered without a single untoward symptom. Grove and Vaughn alike declare but one dog of every *twenty* specifically infected ever manifests evidence of the disease ; John Hunter says, one of *twenty-one ;* Hamilton, one of *twenty-four*. Nieumann, whose opportunities for securing precise data seem to have been unsurpassed, lowers the figures to one in *thirty-five ;* even the extended researches of Fabre gave but *thirty-one* out of a total of *nine hundred and thirty-two ;* and yet these statistics, all, confessedly, embrace many cases of spurious and doubtful rabies! Atop of this remember that Youatt treated four hundred members of the human race supposed to have been bitten by rabic creatures without a single failure ; a surgeon of St. George's Hospital, London, as many thousand with equal success, and, in 1830, declared before a Committee of the House of Commons he had always cauterized the wounds, and hydrophobia had in no case developed ; of two hundred and thirty-three persons bitten in Zurich, Switzerland, during a period of forty-two years, only four developed the malady ; of one hundred and six cases in Stockholm, Sweden, during an *epidemic* of canine rabies in 1824, only one case accrued ; and during an epidemic in Greenland, more recently (1866 or 1868), there is no evidence of a single death, which may be ascribed to the ignorance of the Innuits, who are not yet sufficiently civilized to be familiar with the superstitions of the Caucasian race !

All punctured and cicatricial wounds, regardless of locality or age, tend to reopen under impoverished conditions of the blood, such as *septicæmia*, *pyæmia*, *purpura*, *stomatitis-materni*, puerperal conditions, excessive ravages of vermin,† poisoning by venomous serpents, etc. ; but the theory whereby any virus, rabic or otherwise, is supposed to lie dormant in the vicinity, or at the point, of inoculation, for periods varying from two weeks to a quarter of a century, is utterly untenable, not to say ridiculous. Involving physiological and pathological impossibilities, it presupposes stasis of the capillary circulation with none of the results that invariably accrue to such stasis ; or in other words, it teaches that the individual engaged in a street brawl that closes his optics overnight, has no business to expect black eyes in the morning ! The period of incubation for any septic poison —and all are known to be co-relative—or toxic product, *cannot exceed forty days under circumstances most favorable thereto*,‡ and even this is an unconscionable limit ; and a disease developing itself subsequently, no matter what, or how suspicious its nature and attending phenomena, can never be truly a rabies, or lyssa, but must be assigned to one of the

* See Ireland's "Blot on the Brain."

† In 1884 a *lepero* ("tramp") died in the hospital at Guadalajara, Mexico, from the ravages of overwhelming numbers of vermin,—*pediculi vestimenti*. Relating the fact to a professional brother after my return from the "Sister Republic," I was shown the notes of a like case that occurred during the late Civil War in the campaign before Vicksburg, the unfortunate a member of the Twenty-seventh Regiment Michigan Volunteer Infantry. Subsequently attention has been called to two more, and every way parallel, cases.

‡ Stop and consider that *Tetanus* and *Trismus* develop in less than a fortnight! The inference and analogy are alike obvious.

many coincidences that are wont to arise, and which, as every student and experimenter in the pathological laboratory knows, are more frequently developed than facts, owing to psychic causes and relations,—a truth which the world at large is slow to recognize.

More than threescore of the ills peculiar to humanity, and double as many affecting animality, are perpetually being mistaken for rabies, or "hydrophobia."* Indeed, the mere suggestion of the animal in connection with any malady is usually sufficient, especially when fear is rife, to secure the fatal diagnosis. I say *fatal*, for the unfortunates, once the announcement is made, or the dread malady inferred, almost invariably succumb to fright, that is further fostered by the imbecility of friends and attendants. Under such circumstance, therefore, the medical man, no matter what his surmise or individual conviction, who ever permits so much as a hint of "hydrophobia" to escape him save in the the sanctity and secrecy of professional consultation, becomes guilty of *gross criminality!*

The ignorance of the medical profession regarding the disease is neither remarkable nor surprising, when it is remembered that, aside from mere speculative inferences, nothing of practical importance has accrued to the subject of rabies during our era.† Less than a twelvemonth gone, Theodor Billroth, whose surgical and pathological information is the glory of Austria and the civilized world, and which few will care to question, gave utterance to the following remark in conversation with an American physician: "I have viewed scores of cases supposed to be hydrophobia, yet *I dare not definitely say I ever saw a case!* In not a single case, either before or after death, could it be definitely or satisfactorily established the disease was of rabic origin!"

It certainly is most unfortunate that a mere *name* should induce mental panic, for, as is well known, rabies manifests no symptom or train of symptoms peculiar to itself, not even fatality, and presents no phenomena that do not with equal certainty accrue to scores of simple, or at least non-infectious, maladies.‡ All, the laity as well as professional men, *should* know, that it can *never* be determined with such accuracy as to preclude possibility of error!

Post-mortems are practically valueless even in the hands of the most expert pathologists, so far as affirmative evidence is concerned, and the teachings accruing to such are merely series of negations, ignoring the fact that the pathognomonic changes, as laid down, are equally applicable to a majority of the diseases of the nosology,§ and in the canine are sequels of overheating, fear, torture, and other forms of physical exhaustion and mental fatigue. The following diseases of the dog are perpetually being mistaken for rabies by all classes of individuals and medical men: Intestinal and other parasites, from which the race individually or collectively is rarely if ever free; foreign bodies in the stomach and digestive tract, such as bones, marbles, spools, coals, sticks, straw, fæcal matters (very common in puppies), rags, pebbles, strings, feathers, leather, buttons, etc.,‖—all of fre-

* See THERAPEUTIC GAZETTE, October, 1886, pp. 683, 684.

† Democritus (400 B.C.) declared the "great nervous system" to be the "seat of the disorder;" Cælius Aurelianus (170 B.C.) treated of rabies with wearying prolixity, portraying its many phases as now taught with accuracy and fidelity; and from their time down to the present, definite pathological changes in brain and spinal cord have been sought in vain. And though discoveries have been heralded from time to time, none have been able to withstand the test of calm, dispassionate, scientific inquiry; all are conclusively proven spurious, imaginary, or utterly lacking in specificity.

‡ Even Dr. Frank Billings, State Veterinarian of Nebraska, one of the ablest comparative pathologists America has produced, and who believes in rabies as a disease *sui generis*, is forced to confess: "It consists of little else than a change of the natural deportment of the animal!" ("Relation of Animal Diseases to Public Health," p. 149.)

§ I once knew an able pathologist to be "taken in" by being informed the cadaver he was about to submit to autopsical examination had "died of rabies." The true cause of death was *ulcerative stomatitis*. Again, a well-known comparative pathologist and able veterinarian, under precisely the same circumstances, was led to affirm a rabies in a dog that had been chased and beaten to death! When experts, presumably as familiar with the disease as it is possible for any one to be, commit such errors, what may we expect of non-experts upon whom such examinations usually fall? Within a short period, a county officer made a post-mortem of a young man who died in a Western city of manifestly spurious rabies, and drawing on a pair of rubber gloves before beginning, remarked to the reporters he would not dare trust his naked hands to touch the interior of the cadaver, since in such case he *himself* would *invariably contract rabies*. Under such circumstances, and display of ignorance, is it at all astonishing that the verdict of the autopsy was affirmative? And yet professionally (and deservedly) the gentleman is of high standing!

‖ Unfortunately, the ailments of the canine race receive but scant attention from veterinarians, owing to the fact their best efforts, for reasons obvious, are directed to the study and relief of creatures deemed generally of greater pecuniary and economic value. Dr. E. Spitzka, justly celebrated as a pathologist and neurologist, declares of more than forty canine vivisections made in the laboratory of Professor Henry Draper, in not a single instance

quent occurrence in all Canidæ, a fact generally overlooked by medical men, including veterinarians; all the array of heart, lungs, liver, kidney, generative, intestinal, throat, eye, ear, rheumatic, skin, and muscular disorders; starving and improper food; "earache," "toothache," abscesses, fevers, epilepsy, chorea, and all convulsive maladies; septicæmia, pyæmia, and other poisonings specific and toxic; meningitis,—and indeed the whole category of nervous and mental diseases to which dogs are much more prone than man, and whose existence is rarely suspected, or generally ignored, by all classes of practitioners.

A dog under the influence of torture, torment, or hallucination, persecuted by a mob perhaps, is especially dangerous, since he is no longer master of himself, and his bite is now apt to induce fatal blood-poisoning in the person or animal bitten. Such a canine, if suddenly killed, invariably exhibits the flaccid muscles and "fluid condition of blood," upon which M. Bouley and others lay so much stress as pathognomonic of rabies! The saliva of all creatures, more especially the Carnivora and Omnivora, man included, contains germs that, under powerful emotion stimulating the ganglionic centres providing the secretion, may develop the utmost toxicity.* Obversely, a wound inflicted by a strange dog is not evidence upon which a household pet or companion should be destroyed, for canines are jealous creatures, and prone to resent any assumption of superiority or familiarity on the part of others of their race whose social caste or status is higher than their own.—Especially is this true of vagrant street-curs! How often one sees two dogs meeting, with stiffened tails, uttering interrogative growls, and an instant later, after touching noses, manifesting the extremes of friendship or malice; and does any one suppose these incidents do not parallel like encounters among higher orders of beings, or that a quarrel is not the sequel of epithets that, bandied in like manner, would provoke conflict between their masters?

With something like a quarter-century's experience as physician and student of comparative and general pathology and physiology, and likewise dog-owner and breeder, I have never (fortunately or unfortunately) been brought in contact with a *genuine* case of rabies, which fact evinces how much care a trifle of scepticism induces. During this period, however, more than threescore of canines, alive and dead, have been submitted to my inspection as victims of the malady, often by veterinarians, yet in every instance critical examination and study revealed *other*—and often most commonplace—maladies. Within twenty months I received, per favor of an eminent veterinarian and teacher, the heads of three dogs destroyed by his order as "unmistakably rabic." One was found with a deep-seated tumor of the brain resultant upon an old pistol wound and an encysted bullet; the other two were marked cases of the disease vulgarly termed "internal canker," but properly defined as inflammatory mastoid disease. From the ear of one of these last, on dividing the temporal bone through the tympanum, was removed a mass of necrosed bone rivalling that described by the late Sir Peter Crompton as withdrawn from the ear of a lady patient, consisting of the whole internal auditory apparatus,—vestibule, cochlea, and semicircular canals; the pneumatic cells in both animals were badly diseased, and the pus had found outlet through the inner table of the skull, producing softening of the middle lobe of the cerebrum and phlebitis by the involvment of the lateral sinus. Commenting upon the foregoing my veterinary friend writes, "I shall never dare diagnose rabies again. I was never so near uttering a total disbelief in the malady!"

Four fatalities in human subjects with which I am personally familiar, on autopsy were recognized as commonplace cerebral disorders with obscure manifestations, and with no possible reference to or connection with the dread malady; yet prior to the autopsical examination there was not so much as the shadow of a dissenting doubt expressed by the attending and consulting physicians.

Three recoveries exhibit markedly the liability to err on the part of the most expert, especially as the first two involved each the opinions of more than thirty gentlemen eminent in the medical profession, including well-known expert neurologists! They are also suggestive of the value of cool heads and

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was the stomach found without one or more foreign bodies. Experiences of my own corroborate this statement in every particular.

* Any of the secretions may be changed. Undue and unnatural excitement has been known to so develop toxic properties in the maternal breast, human and animal, that the young, drawing nourishment, were either immediately stricken with death or made dangerously ill. Injuries inflicted by the teeth of healthy human beings on more than one occasion have proved fatal. Scarce a work on Physiology but what enumerates one or more such instances.

practical, hard, common sense in dealing with emergencies.

1. Six months previous to attack, the gentleman had been bitten in the wrist by setter dog. *Hydrophobia*, *aerophobia*, laryngeal and pharyngeal spasms, and all the rabic symptoms defined as pathognomonic, were most intensely marked. Speedy recovery was made, however, when it was discovered, by the aid of *one* "doubting Thomas," that the offending canine was not only alive, but in full tide of health! Had not the owner violated his pledge to destroy the animal, the sequel can well be imagined.

2. Lady residing in New Orleans was bitten through the thumb, the wound involving the base of the nail. Three weeks later intense pain was experienced in the part bitten, the wound suppurated and reopened, arm swelled, glands became inflamed, and the absorbents presented the "red lines" shooting to the shoulder upon which so much stress is often laid. The manifestations of rabies were as profound as in the former case; the nervous condition of the patient was deplorable, and her sufferings, beggaring all description, defied the most powerful opiates and narcotics. Medical men from at home and abroad were summoned, and without a single dissenting voice pronounced the verdict of "Unmistakable hydrophobia," and united in a demand for the death of the offending canine; one gentleman, since deceased, a well-known medical author, went so far as to say, "If this is not a case of genuine *rabies*, there never was one!"

The father of the lady, himself a physician (retired), and a sceptic as regards the existence of rabies as a disease *sui generis*, declined, as he expressed it, to "sacrifice both girl and dog" to what at best he believed to be a "mere superstition." His "reprehensible stubbornness," as it was termed by his colleague, met its reward. After lingering long in the "borderland" 'twixt life and death, the lady recovered; and the dog which committed the deed in a moment of rage—he was being teased at the time—departed life, six years later, of *senility*, never having manifested any evidence of disease more serious than temper!*

3. Another "veritable case" — so pronounced by a number of medical gentlemen —was presented to my notice in July, 1886, when, as my readers will recall, the American hydrophobia *epidemic* was at its height. The patient in question was an able-bodied, sensible Irishman in middle life, and—fortunately —of superior education, who had been bitten by a pet cub-fox. Inquiry revealed no grounds for supposing the fox had ever been infected, a premise that was further contradicted not only by the history of the creature, but by examination of the exhumed carcass. A candid statement and explanation of the facts involved, including the impossibility of rabies originating *de novo*, or spontaneously, in any creature, caused the sufferer to dismiss his fears and at the same time his soul's adviser; for, being a Romanist, he had already begun his "final duties." Thirty hours later he was fully recovered, except for the chagrin developed by the fact that he had been brought so near the jaws of death by no other agent than his own morbid imaginings, fed by the superstitions of individuals, and the sensational rantings of an irresponsible secular press.

The eminent Professor Dick, the founder of the Veterinary School at Edinburgh, to the last moment of his life maintained that hydrophobia, or rabies, was merely a nervous affection, independent of specific inoculation, —produced by fright, in fact. Baron Larrey, famous among French surgeons, tells us he saw numerous cases of hydrophobia among the soldiery serving in Egypt as the sequel of *gunshot wounds*; and the same is chronicled by a colleague as true of the military serving in the last war in Algiers. It is well known similar symptoms may be induced by irritation of the *medulla*, or by the presence of tumors or neoplastic growths; and during the past year, two well-marked cases, exhibiting all the extremes of *rabies canina* var. *humanum*, developed in the hospitals of San Francisco as a sequel to chronic malarial poisoning.† Again, two cases, most interesting in this connection, and caused by *cysticerci*, are recorded, one by Dr. Dolan, in the English *Practitioner*, the other by Mr. Branfoot, in the *Indian Medical Gazette*.‡ Cases innumerable of like character might be cited; and in this connection let me call attention to the able monograph, one of the most complete papers of modern times devoted to the subject, by Dr. Charles W. Dulles, of Philadelphia, and appearing in the "Transactions of the Pennsylvania Medical Society for 1884."

One Stephens, and a disciple named

* I have been put in possession of the complete clinical record of this case as penned by the father: the lady in question being a near relative of my own.

† *Journal of the American Medical Association.*

‡ "Pasteur's Prophylactic," by Chas. Bell Taylor.

Fischer (according to Dr. Taylor), to test their theory that hydrophobia is a purely imaginary disease, never miss an opportunity of being bitten by a "mad" dog, and have thus been wounded *forty-seven* and *nineteen* times respectively. Again, the great influence which expectant attention has in provoking peculiar sensations,* even in calm and ordinarily courageous persons, is illustrated by Dr. Spitzka, in the case of a gentleman near Watertown, N. Y., who, by enforced self-control, warded off an attack of spurious rabies that otherwise would, undoubtedly, have proven fatal.† Finally, Mr. Mayhew, the eminent veterinarian,‡ and an acknowledged authority, and whose opinion is indorsed by Youatt and Sir Thomas Watson,§ tells us "Rabies is not only a febrile disease, but the dog is positively eaten up with raging fever; every fibre of the body is inflamed, and the eyes, which glow like *living coals* in the early stages of the malady, become *bottle-green*, and *slough and fall from their sockets* ere death closes the scene."

From the foregoing facts and quotations, we may conclude if there be a rabies that is a disease *sui generis*, it is so exceedingly rare that it has not been encountered during the last quarter of a century and more; further, that Dr. Charles Bell Taylor is correct in his assertion, "That nowadays we diagnose rabies far too liberally, and that, according to modern ideas, a dog has only to be eccentric, excited, furious, sick, or mentally afflicted to be deemed rabid."

In conclusion, permit me to formulate a few simple axioms, applicable equally to the government of professional men and those of the laity:

1. Rabic dogs, far from fearing water, court it.

2. The disease is positively never of spontaneous origin, and the period of incubation after infection does not exceed five weeks at most. The absence of recent wounds is *prima facie* evidence rabies is *absent*.

3. Suspicious phenomena induced by wounds inflicted by non-carnivorous animals may be *septic*, but *never* rabic; and it is impossible for one of the human race to convey the malady to another or to any creature *by any means whatever!*

4. The *saliva* of carnivorous creatures alone can produce the disorder.

5. Excessive saliva in the canine is induced by all forms of fatigue, by affections of the ear and throat, mouth and teeth,—especially dental caries,—eating of "dog" or "quitch" grass (*Triticum repens*), distemper, choking, inflamed wounds, fear, paralysis, etc.; and paralysis, independent of rabic condition, is a concomitant of many local, sympathetic, brain, and nerve disorders. The same is also true of twitching of eyes, eyelids, jaws, muscles, etc.; of lolling tongue, indrawn tail, updrawn flanks, drooping head, slinking gait, and wandering habit (the last is much more likely to be due to a *taste for mutton* than any disease); one and all, save as indications of misery and suffering, are not of the least value alone, and nearly all are present in mastoiditis, anæmias, fevers, and the lesser forms of illness.

6. Safety lies not in destroying, but *preserving*, the suspected canine, and sequestrating for observation. *By its death the only evidence whereby can be determined it is not rabic, is destroyed.* If it evinces good appetite after four days of such sequestration, all fears are groundless. If it dies without paralysis of both the jaws and the posterior extremities, it is not rabic; if it dies paralyzed, search for cause, as the probabilities are still nine hundred and ninety-nine in a thousand its decease is due to some other malady. Dogs with "fits" are never by any possibility "mad," and convulsions are evidence of choreic, epileptic, or other harmless seizures. Neither are dogs with frothy saliva rabic, since the secretion in the latter is always clear, glairy, thick, and ropy. After ten days, if the animal manifests a cheerful disposition, it should be released,—it is harmless.‖

7. The human species afflicted with rabies, do not howl, whine, bark, or exhibit other canine characteristics, any more than do fowls, sheep, cattle, horses, and other animals under like circumstances; and such phenomena are definite evidence of the spurious character of the seizure, which is more likely due to *hysteria*.

8. Intolerance to light, of reflection, air in motion, and inability to accept fluids or solids, including spasms of the muscles of pharynx

* See Dr. Ireland's "Blot on the Brain."

† *Vide Jour. Comp. Med. and Surgery*, July, 1886, p. 249, article "How can we prevent False Hydrophobia;" also New York *Times* of June 2, 1886.

‡ Edward Mayhew, "Dogs and their Management."

§ "Practice of Physic: Youatt on the Dog."

‖ These rules are intended to apply only to the canine that is supposed to have infected another or the human being. Suspectedly infected Carnivoræ should be quarantined, four or five weeks, in a place remote from other dogs, where they will not be disturbed, and then closely watched.

and larynx, far from being evidences of rabies, are every way and wholly *most untrustworthy!* They occur in diphtheria, croup, glottiditis, bronchocele, laryngitis, pharyngitis, tetanus, hysteria, pregnancy, asthma, senile bronchitis, angina, chorea, epilepsy, amygdalitis, cardiac and pulmonary diseases, ulcerations of digestive tract, genito-urinary reflexes, use and abuse of stimulants and narcotics, malignant affections, certain maladies of the auditory apparatus, the disease of the eye known as acute glaucoma, by poisoning through various vegetable and mineral substances (notably, compounds of mercury and potassium), a multitude of brain- and nerve-affections, and general reflex causes. In no instance would they excite special attention but for the evidence of an animal linked therewith as a possible factor.

9. Until death ensues the weight of evidence is *always in the negative*, and after death the evidence is *very far* from being positive.

10. Since less than five per cent. of rabically inoculated dogs ever contract the malady, the dangers to man are most remote, and less than from scarlatina, measles, bronchitis, intermittent fevers, etc., or, as Dr. Taylor puts it, "less than one in a million,—less than the danger of being kicked to death by a horse." In Bavaria, with a population of six millions, there have been but three deaths in seven years ascribed to rabies! Atop of this let me add, after careful and critical analysis of the records of each and every case that could be obtained as occurring in America during the last quarter of a century, ending July 1, 1887, I have been unable to discover *even one* that is not open to suspicion of gross error!

PORT HURON, MICH., February 6, 1888.

ACUTE IODINE-POISONING.

BY W. O. CULPEPER, M.D., PINFOLD SHEETS, BARBADOES.

ON the 21st of January I attended a case of acute iodine-poisoning from absorption. The case terminated fatally five days and a half after the application of the iodine. The symptoms differed in some respects from the case of Rose, mentioned in Wood's "Therapeutics."

On Tuesday, 17th of January, about 9 P.M., a colored woman, following the advice of her friends, applied ʒii of some preparation of iodine to both legs of her son, a child of 11 years, for some skin disease, probably eczema. The application was thorough, and the preparation was strong, for it took off all the skin from above the knees to below the ankles on both legs; there was *absolutely* no spot on either leg in any way covered, but the whole was as raw as if scalded in molten metal or boiling syrup.

On Tuesday night and Wednesday the child seems to have suffered very much, but only locally, from the pain. On Wednesday night he was seized with headache, pain in the back over kidney, over stomach and bowels and bladder, and did not appear to have passed water. These symptoms became worse on Thursday, also some diarrhœa and vomiting along with great thirst. Boy says he passed water once, mother says he tried several times but passed none.

On Thursday night and Friday the pains seem to have reached their acme and hiccough came on. The slightest movement induced the vomiting and hiccough, and there was constant desire for water, and ineffectual desire to pass water. Mother and child state that there had been all along more or less spitting. I saw nothing of the kind on Saturday and Sunday. On Friday night the hiccough became worse, and the child became so much weaker that the mother, getting alarmed, sent for me early on Saturday morning. I found the child vomiting, purging, and hiccoughing, crying continually for water, and bringing it up as soon as swallowed. He was perfectly in his senses, said he had no pain except in his head and over his bladder. His temperature was 98.8°, his pulse rapid, but the artery was full and struck the finger with a fair impulse. His skin was dry and his tongue furred; tongue and buccal mucous membranes were free from moisture but not dry to any degree. His pupils were normal (*but in a negro it is hard to be certain about the pupils*). The child told me that all the time he had been sick whenever his head was raised up it spun around and he got giddy, and his mother said he had fainted away several times, so that she had to give him smelling salts. His abdomen was flat, and there were no signs of water in the bladder. I used the catheter three times without getting the slightest amount of water. This operation was not very easy as he was suffering from priapism, and had, in addition, epispadias. There was no salivation at this time, and parotid glands did not appear in any way swollen.

During the day (Saturday) he improved a

little, and I examined his alvine discharges. I found them free from any particular fæcal scent, only a little raw. I tested some and found iodine, a tablespoonful mixed with a little nitric acid and tested with starch turning quite blue. The next morning his condition was worse and his alvine discharges had mucus mixed with blood (something like dysentery); there were some dark-colored specks, which, on being touched with acid and treated with starch, gave a deep blue. During this day his pains returned and the dysenteric stools became frequent, the vomiting and hiccough continuing all the time. On Saturday he was slightly out of his mind for a short time, from want of regular sleep, I think. On Sunday night his symptoms became more marked, but his intellect remained clear. He died at 4 A.M. on Monday morning. His mother raised him up to let him move his bowels, and soon after he passed away quietly and without pain; his stools becoming almost pure blood; at least his mother said so; I did not see any night stools.

I could not test his saliva, as there did not seem to be any to be got. All the fluid I saw him bring up from his stomach was water or medicine, the very minute he swallowed it. The act of vomiting did not seem very distressing. I did not think it of any use to test the fluid vomited, and I could obtain no urine.

Remarks.—His temperature was never higher than 98.8° in spite of such a pair of raw surfaces.

He had total suppression of urine for days, and some priapism.

He suffered from dysenteric stools for the last forty to forty-eight hours of his life.

His intellect remained clear to the last.

Complained of great giddiness on any movement.

His lungs were resonant, but owing to his hiccough, etc., it was impossible to make out anything there.

SULPHUR IN DIPHTHERIA AND AS A GERM-DESTROYER IN DISEASE.

II.

By H. Valentine Knaggs, M.R.C.P., F.R.C.S., London, England.

IF the progress of any germ-disease be carefully watched, it will be found that nature makes a decided, although not always successful, effort to remove the complaint by eliminating such germs and resulting ptomaines as may be formed. This elimination takes place for the most part through the excretory organs. In order that this purpose may be effected satisfactorily, the temperature rises above the normal and the systemic circulation is accelerated. The amount of air taken into the lungs is thus augmented. The functions of the skin are greatly increased, an indication of which is frequently seen in many of the eruptions peculiar to these diseases. The intestinal canal and the kidneys likewise participate to a variable extent in the process.

We find, moreover, that nature alone, by her own unaided powers, and in her own peculiar manner, is capable of eliminating the contagium from the tissues in most germ-diseases occurring in previously healthy subjects, provided that the virulence and life-destroying properties of the germs do not prove too much for her powers. It becomes, therefore, an important question to the physician to consider how he can intelligibly assist the efforts of nature in his treatment, or in other words, how he can apply the *vis medicatrix naturæ* to the disease. The most rational answer to this question would appear to be that there are two alternatives. He must either facilitate the elimination of the poisonous microscopical germs or cause their destruction *in situ*. In the first instance it is a necessary element of the treatment to help the excretory organs to bear the strain put upon them and to increase their germ-eliminating functions. In the second, to endeavor to destroy the germs present in the body before they are actually excreted.

The latter plan of treatment by known germicides is, to my mind, the best, the safest, as well as the most expeditious to adopt; provided the remedy used is not, as it were, a substance foreign to the economy. It would be preferable to select a germicide which, in a state of health, is a natural constituent of both the food and tissues of the body. By the use of such a food-drug we can destroy bacteria, etc., and effectually remove the exciting cause of the disease without in any way injuring the system.

Dr. Wolfhügel, a German scientist, experimented with germ-destroying agents. He found that a dilution of sulphurous acid vapor to the extent even of .75 to 1 volume per cent. rapidly killed all micrococci, bacteria, etc., in two minutes when wet, and in twenty minutes when dry. *It had no action at all on the spores.*

We may infer from this fact that, when sulphur is administered to a person suffering

from any germ-disease, it is necessary to continue the use of that drug until all the spores have developed and the bacteria, etc., resulting therefrom have been destroyed as fast as formed, while any poisonous ptomaines are rendered harmless and inert by the disinfectant properties of the remedy. The time required to effect this purpose varies considerably according to the particular contagious or infectious disorder to be treated. If given to a diphtheritic patient in frequent small doses the sulphur mixture is found on an average to annihilate the diphtheritic growth in five days.

Even after the first few hourly doses of the mixture evidence of the curative action of the sulphur may usually be noticed. Under the continued use of the remedy the growth becomes gradually dissolved away. At the end of the fifth day, or thereabouts, a bright hyperæmic appearance of the parts which have been affected alone remains.

It is a curious fact that until the diphtheritic contagium has been completely eliminated from the system, neither purging nor colicky pains are produced by the exhibition of the sulphur mixture, signs which would very speedily make their appearance in a healthy subject as the result of the same doses. When these symptoms ensue, a clear indication is furnished that the quantity and frequency of the doses of the drug should be greatly diminished or even stopped. The same marked tolerance of this remedy is also manifested in other acute germ complaints, such as, for instance, scarlatina or pertussis.

This mineral readily volatilizes and forms nascent sulphurous acid gas at the temperature of the human body, and, *a fortiori*, in contact with the fever-heated mucous membrane of a diphtheritic sufferer. Each particle of the substance adherent to the local growth will therefore emit vapor. This nascent sulphur vapor creates an "atmosphere" in which it is impossible for any low form of vegetable life to be long sustained. When taken into the stomach sulphur is readily absorbed into the system. The patient is temporarily converted, so to speak, into a vast sulphur gas-generating machine. It penetrates alike the solids, fluids, and cavities of the body from the inner surface of the intestinal canal to the outer layers of the skin. Therefore, whether the complaint be local or general, the remedy will be apposite.

The stimulating properties of this drug when administered in small doses to man or to the higher animals is often very noticeable. By its stimulant action it undoubtedly contributes to counteract the rapid adynamic effects of the diphtheritic contagium on the system.

In considering the action of sulphur as a remedy for disease, it may be advantageous to refer briefly to the natural relations that this mineral bears to the higher forms of animal and vegetable life, especially in their bearing on the subject of human food and health. Sulphur or its compounds are found in both the animal and vegetable kingdoms, and would appear to act the part of a natural disinfectant.

In conjunction with other antiseptic bodies, such as compounds containing chlorine, organic glycerin fats, etc., sulphur is almost universally present in our food. In health it preserves our own bodies from contamination from without. Witness, for example, the sulphates and chlorides of the blood, milk, the biliary secretions, etc. In the vegetable kingdom it is found that sulphur is distributed to a variable degree in the soil. Volcanic ground especially contains a considerable proportion of this mineral. Highly-organized plants grown on volcanic soil, or on land that has been freely dusted with the substance, mature in a most remarkable manner.

Joigneaux states that "since the adoption of sulphuring in the Herault as a remedy for mildew the vines have become much more precocious ; the maturation of the fruit being advanced about ten days."

Sulphur, in fact, plays the same part to the highly-organized vegetable as it does to the animal. It preserves the tissues of each from the inroad of destructive fungi, which, while working salutary havoc among dead or decaying animal and vegetable matter, are out of place on or in the substance of living structures. When the earth becomes denuded of this, and other germicide ingredients, by a succession of crops that rapidly carry off these substances, or by the continued presence of numberless herbivorous animals, the ground is bereft of its deodorizing constituents, and disastrous consequences are apt to ensue both to the edible products of vegetation, particularly the vine, the hop, the potato, and other plants, and to the living animals, which in their turn derive sustenance from them. I cannot too strongly urge the employment of sulphur or its salts as an ingredient of manures, or as a dressing for meadow or prairie lands. The outlay would be well repaid. As I have already stated, volcanic ground and land manured with sulphur has been proved to be

most fertile. Professor Johnson, moreover, has stated that the wool of British sheep alone annually absorbs and carries off from the soil of Great Britain and Ireland upwards of *four million pounds of sulphur*, of course through the medium of the vegetable food from which these animals derive their maintenance. Hence, in addition to the benefits to be derived from the use of the mineral as a fertilizing agent, it would also improve the healthful condition of the animals from which we in great measure derive our own food.

It stands to reason also that when large quantities of this important element are permanently abstracted from the earth, the latter must become impoverished in this ingredient, unless it is in some degree replaced. Animals suffering from a deficiency of sulphur or chlorine in their food are prone to become a prey to the attacks of pleuro-pneumonia and other insidious germ-diseases. In the same manner liability to the action of the cholera virus is, according to Dr. Blacklock, increased in the human subjects by a diet containing an insufficient quantity of sulphur constituents. I am firmly convinced that the judicious employment of sulphur as a manure would act as an efficient preventive of pleuro-pneumonia and other analogous diseases peculiar to ruminant animals. In January, 1877, during a severe epidemic of this disease, I pointed out the desirability of administering sulphur inwardly in such cases and dusting the hides, stalls, and mangers of cattle, whether affected or not, in all localities where pleuro-pneumonia was prevalent. I am unaware if my suggestion was adopted, but I feel confident that it will successfully stand the test of a fair trial.

By the employment of sulphur in disease we supply to the system a substance which is not merely natural but even essential to its well-being in health. By freely sulphuring the soil or adding it to manures, and thus increasing the proportion of this body in our food, both animal and vegetable, we should do much to fortify ourselves against the attacks of germs, and consequently to prevent epidemics of diphtheria and kindred fungoid diseases.

In looking over the records of past ages we find much that is interesting and much that can serve to attract our attention in connection with the manifold uses of sulphur. The accounts of the writers of the ancient world, although meagre, are yet pregnant with interesting facts. The Greeks and Romans of antiquity all appear to be agreed as to the efficacy of sulphur as a disinfectant. While this mineral is freely lauded as a remedy for ringworm, the itch, and other skin-diseases, and while it is advocated as a local remedy in the form of plasters, fomentations, and cataplasms to relieve pain and to mature and resolve abscesses, its power of disinfecting and destroying the specific poisons of acute and chronic germ-diseases, when present in the body itself, would seem to have been quite lost sight of.

Pliny does state, however, that its administration is useful to calm certain pains in the chest and loins, and to relieve shortness of breath and fetid expectoration. Dioscorides, his contemporary, further remarks that sulphur is serviceable in relieving the feeling of weight in the head and in catarrh, symptoms which in some cases might possibly be construed as indicative of the presence of micro-fungi.

The first record of any definite use of sulphur in diseases originated by germs is obtained from the work of Matthias Untzer, who flourished in the sixteenth century. This author wrote a treatise on sulphur, which he recommended *as a preventive against the "pest."*

The medical works of the past thirty years are full of interesting statements relating to the treatment of disease by this mineral. Owing to the voluminous nature of the medical literature which has been published during that period of time it is impossible to bring together even a tithe of what has been written on this particular subject. I have endeavored to collect together as large a number of facts as possible bearing on this treatment, excluding, of course, diphtheria, which has already been discussed.

About eight years after the date (1858) when the treatment of diphtheria by insufflations of sulphur was first heard of in France, a remarkable pamphlet by Dr. James Dewar, of Kirkaldy, saw the light of day. It bore as its title "The Application of Sulphurous Acid Gas to the Prevention, Limitation, and Cure of Contagious Diseases," and was published in Edinburgh in 1866.

Dr. Dewar began his experiments by the employment of sulphur fumigations for the purpose of treating the various contagious diseases at that time so prevalent, and so fatal, among cattle. These experiments were subsequently extended to the treatment of diseases occurring in the human subject, and the cases that he cites mainly refer to phthisis.

Many of the statements set forth in this pamphlet are so convincing and so full of

interest that it may be worth while to quote somewhat freely from its pages, especially as I believe it is now out of print.

Dr. Dewar was the first to point out that this vapor did not possess the deleterious and poisonous properties which had hitherto been attributed to it. He declared emphatically that, provided proper precautions were taken, it was not merely perfectly respirable, but was even capable of effecting considerable improvement and often powerful curative action as regards many of the fungoid diseases from which mankind at large were liable to suffer.

His method of employing the fumigations for sheds or byres containing live-stock merely consisted in filling a chaffern two-thirds full of red-hot cinders and in inserting among them a crucible in which a sufficient quantity of roll brimstone was placed. *Ventilation must be attended to and must be constant, when the attendant can shut himself up in the byre also.*

"Sulphurous acid gas," says this author, "has been long known and used as a disinfectant of empty apartments, ships, etc., but its practical usefulness was much curtailed by the unnecessary restrictions imposed regarding it, under the mistaken belief that its fumes could not be inhaled without deleterious consequences. This danger experiment at once proved to have been exaggerated, and accordingly we find now that it can be beneficially and freely applied under circumstances in which formerly it was believed to be forbidden; and I only know of one case in which the practice was attended by disagreeable results, and that was a case of chronic bronchitis, in which the consequent difficulty of breathing was very distressing."

The results obtained by experiments in many diseases occurring among cattle, such as cattle-plague, pleuro-pneumonia, etc., would seem, to an unprejudiced mind, to be quite convincing. It is stated by the doctor, on page 11, that "a large dairy in this immediate neighborhood has, I have been informed, for nearly thirty years maintained a notorious character for mortality among its cows. The present tenant during his occupancy of about eight years has never been, up to the 1st of November last, one whole month without having this disease among his stock; and within twelve months of that date he had buried sixteen cows, the last of these only three days before he began to fumigate. *From that time till now his byres have been perfectly healthy.*"

Again, on page 12, "In a very fatal epidemic among sheep, the symptoms and morbid appearances in which were so very similar to what I have witnessed in cattle as to leave no doubt in my mind as to its close relationship at least to rinderpest, the results of the experiment were eminently satisfactory where the remedy was heartily and honestly applied, this having been speedily followed by amelioration in the form, as well as limitation in the spread, of the malady."

The discovery of the curative power of sulphur vapor in consumption would appear to be the direct result of a pure accident. I quote from Dr. Dewar's work as it stands. He states, "The case to which I more particularly refer was one of advanced phthisis in the person of my own groom, whose downward progress others as well as myself watched with hopeless concern. Previous to January last he had for months been wasting, coughing, spitting blood repeatedly, and sweating profusely. His death was reported again and again, and to such an issue both he and I had looked forward to as inevitable. I had got one day some cattle for experiment from a farm where the disease (cattle plague) was raging, and which was cleared out within ten days thereafter; and although C. was quite unfit for any exertion, as I could depend on his fidelity for superintending the process, I begged *that he would endeavor to see it done* for fourteen days or so (the critical period), lest infection should have been imported with them. He said he would try, and at once proceeded with the fumigations, which he has up to this day conducted with perfect success as far as my cattle are concerned—they are the only living ones of the original herd—*and with the most wonderful benefit to his own health* which can be conceived. Within one week the night-sweats had ceased, his cough gradually abated, and he has progressively gained weight, as he says, nearly two stones within four months. He is now dependent for his life upon one lung only, or nearly so, but, with the exception of his being somewhat short-winded,—for a like reason that a man with one leg must of a necessity be lame,—he looks nearly as strong and is as able for ordinary stable-work as he was previous to his illness.

"Another and somewhat similar instance is that of a young woman of 20, who, for some months before the last week of March, had been wasting, coughing, etc. I saw her then for the first time, and told her about fumigating. She at once adopted it, and has

since filled her room with fumes three times a day with manifest advantage; for while there is still evidence of extensive pulmonary disease, her condition has manifestly improved and her cough has been materially relieved. She tells me that she used to weary for the time coming, as the process uniformly gave her a feeling of relief. She is now able to be out of bed half the day, and her mother reports that she sleeps like a child.

"Another case of chronic phthisis, in a female of 30, has been wonderfully soothed by the same means, which always induced in her a desire for sleep, to which blessed restorative she has been long a stranger, until the idea of comfort in this way was suggested to her.

"Two middle-aged men similarly affected, as reported to me by well-qualified professional brethren in different parts of the country, have been equally benefited by the system under very unpromising circumstances, and many in this neighborhood now have recourse to it in the domestic management of ordinary colds with the most favorable results. In several cases of children, likewise liable to anomalous but frequent attacks of feverish cold, it has proved of the greatest service."

Since the year that the above pamphlet was written many items have appeared in the medical journals, emanating for the most part from Continental sources. These items only serve to bring out more clearly the accuracy of the above statements.

We read in the *Lancet* of July 22, 1882, that Cantani caused phthisical patients to drink water impregnated with sulphurous acid, and to live in an atmosphere impregnated with the gas. The disagreeable effects at first experienced soon passed off, and the results recorded are: subsidence of fever, stationary condition of local mischief, diminution of expectoration.

In the *Gazette des Hôpitaux* of May 26, 1887, is published an interesting communication from Dr. Sollaud, of the French navy, on the beneficial effects of a sulphurous atmosphere in pulmonary phthisis. Owing to an outbreak of typhoid fever among some troops at Cherbourg, it became necessary to disinfect two large barracks by sulphur fumigations. The whole operation of fumigation, etc., occupied sixty days, and Dr. Sollaud intrusted the duty to a sergeant who had returned from service in the colonies, suffering from a severe attack of anæmia. He had, besides, several times had considerable hæmoptysis, and had been, since his return, repeatedly sent to hospital. His symptoms were emaciation, night-sweating, diarrhœa, want of appetite, fever, dyspnœa, persistent pain between the shoulders, frequent cough, expectoration of opaque mummular sputa, dulness on the left side, extending backwards, crepitant râles and cavernous breathing, with occasional hæmoptysis. The sputa contained large quantities of Koch's tubercle-bacilli. The right side was also attacked, but to a less degree than the left. Slight improvement having taken place, and the man wishing to return to duty, Dr. Sollaud intrusted him with the above-mentioned easy work, in order to test the efficacy of a sulphurous atmosphere on his lungs. At first he complained of the suffocating action of the sulphurous acid. The oppression was greater; he had a hacking cough, accompanied by an acrid, burning sensation in the throat, extending down the windpipe; expectoration was more abundant and more painful than before. On persevering, however, the painful symptoms gradually disappeared, and the sergeant was able to enter and move about without inconvenience in the densest sulphurous atmosphere, and soon began to derive much benefit from the treatment. After six weeks the pains in the chest had diminished, and the cough had almost disappeared. The sputa had become whitish, aerated, and came away easily without causing vomiting. The number of bacilli had considerably diminished. Diarrhœa and evening rise of temperature had disappeared; the patient breathed more freely, his appetite was good, his strength and weight increased, and the night-sweats were less profuse. The percussion note was normal over the whole of the left side, and there was slight dulness in the right subclavicular fossa. On auscultation the breath-sounds were slightly bellows-like on the left side behind; there was prolonged expiration on the right anteriorly and small crepitant dry râles behind on the same side (*British Medical Journal*, July, 1887).

In the *British Medical Journal* of July 30, 1887, Dr. W. W. Millard, in referring to the above communication, states that "for nearly three years he has been using this remedy (sulphur fumes) in certain cases of chronic bronchitis, accompanied by much expectoration, with very satisfactory results; the fumes seem to cause a very great diminution in the quantity of expectoration after two or three inhalations. He used an ordinary pastille, as made for fumigation. He had not tried it as yet in phthisis, but should certainly do so, but

for chronic bronchitis he could highly recommend this sulphur treatment."

The treatment of phthisis by enemata of sulphuretted hydrogen gas, although new in principle, is yet old in theory. As early as 1848, Dr. Blacklock employed liquid enemata of sulphide of ammonium to arrest intestinal excitement in cases of cholera. The use of sulphurous acid vapor and the internal administration of the drug also are merely a modified form of exhibiting the same medicament, which, with all reason, may be considered to have a similar effect.

As Dr. Bergeon's enemata are still on their trial, and the results obtained by various observers are at present rather conflicting, I do not propose to refer to it here. A few of the statements criticising the treatment may, however, appear instructive, as showing the efficacy in phthisis generally of sulphur, no matter in what form it may be used.

Dr. H. C. Wood, in the *Med. and Surg. Rep.*, May 28, 1887, claims to have obtained equally good results by the use of artificial sulphur-water by the mouth as a substitute for Bergeon's gaseous enemata. "Almost from time immemorial," he states, "waters of various sulphur springs have been used in the treatment of disease with more or less pronounced advantage. It is, indeed, notorious that many cases which have failed to yield to the most skilful home treatment have more or less imperfectly recovered at such springs. Experience has shown that especially three classes of cases are benefited,—first, all forms of chronic gout; second, various forms of mucous catarrhs, including some cases of so-called consumption; third, skin-diseases.

"It would seem, indeed, that the experience with the Bergeon treatment is precisely in accord with that obtained at the various sulphur springs,—namely, that sulphuretted hydrogen is a valuable remedy in the treatment of pulmonic catarrhs. The disadvantage of the Bergeon method is the cost of the apparatus, the time and assistance required for the administration of the injection, and the colicky pains, which are not rarely produced. The advantages of the method over the administration of the gas by the mouth are not clear. It is simply absurd to suppose that it can make any difference in the action of sulphuretted hydrogen upon the general system or the pulmonic mucous membrane, whether it is absorbed through the colon or through the small intestine. In either case, the gas, as soon as absorbed, enters the portal circulation, and passes by exactly the same route to the lungs."

He further states that "some weeks ago he commenced the administration of sulphuretted hydrogen water by the mouth in pulmonic catarrhs, phthisis, etc., and has found that it yields precisely the same results as does the Bergeon method of treatment. In a few instances the water disagrees with the stomach, but this is unusual. In such cases the rectal injections may be employed."

Surgeon-Major T. Murtagh writes to the *Brit. Med. Journ.* of January 8, 1887: "The application of Dr. Bergeon's method of treating phthisis is so objectionable as to be prohibitory in many cases. Would it not be well, therefore, to test the prolonged internal administration of sulphur, which, to some extent, *passes off by the breath as sulphuretted hydrogen?*"

From the various extracts which I have here brought together there can be no question that the efficacy of sulphur, in one form or another, in phthisis requires to be thoroughly tested. Enough has already been written to demonstrate that this germicide has, in the hands of many careful observers, yielded very remarkable results. If, after a thorough trial, on approved modern principles, it should be found wanting, it is easy enough to discard the remedy.

When administered either as sulphurous acid vapor, as sulphides, or in its elementary form, it should be our endeavor to retain the system for a sufficiently prolonged period of time under its influence. At the same time it must be remembered that *the doses ought to be small enough to saturate the tissues without producing toxic effects.*

189 Camden Road, London, N. W.

(To be continued.)

ANHALONIUM LEWINII.

By L. Lewin, M.D.,* Berlin, Germany.

I HAVE frequently called attention to the fact of the great number of plants which, without any experimental basis, have for generations been used by savage and uncivilized nations as remedies, poisons, and foods, which, further investigated with our modern and complete methods of research, would doubtlessly yield much valuable information to therapeutists. As far as these experiments

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have been carried out they have confirmed this fact.

We cannot possibly imagine how such knowledge could have been gained by these untutored and ignorant people. In speaking of the kombi poison, Livingstone* writes:

"It is difficult to conceive by what sorts of experiments the properties of these poisons, known for generations, were proved. Probably the animal instincts, which have become so obtuse by civilization that children in England eat the berries of the deadly nightshade (*Atropa belladonna*) without suspicion, were in the early uncivilized state much more keen. . . . In like manner, the earlier portions of the human family may have had their instincts as to plants more highly developed than any of their descendants,—if, indeed, much more knowledge than we usually suppose be not the effect of direct revelation from above."

However it may be, experiments with these drugs and poisons have nearly always borne rich fruit. It was for this reason that I undertook to experiment with a drug that was kindly given to me by the firm of Parke, Davis & Co. during my stay in America, and which they had received from Mexico. In its own country the drug is said to be called "Muscale Buttons," and is used as a narcotic, food, or relish. The only botanical classification that it was given in America was that it belonged to the family of the Cacti, but its genus or species could not be determined.

After my return to Germany I at once applied to Mr. Henning of the Botanical Museum of Berlin, and by his help was enabled to definitely determine its species by means of the blossoms of the drug. It proved to be an anhalonium, and indeed a new species, which, however, was very closely related to the *Anhalonium Williamsii*. In the mean while I had discovered several peculiar properties in the drug, and for this reason Mr. Henning honored me by giving the new species my name, for which I herewith express my thanks.

Before going into an account of my own experiments and researches with the plant I give a description of it, which was given me by Mr. Henning:

Anhalonium Lewinii, nov. spec., Mexico. Local name, "Muscale Buttons."

Root (cut off) thick, probably pyriform, like other species of the same genus (in a dry state), about one and one-half centimetres high and three to four centimetres in diameter, as if sliced, knotty, of a dirty-brown color, with knotty protuberances placed spirally, each of which was covered with a felt-like cap of a yellowish color, and without any thorns. These protuberances were about three to eight millimetres apart from each other, the top covered with a hairy cushion of a dirty-white color and about one and one-half or two and one-half centimetres wide; these hairs are six to nine millimetres long, and from them protrude very small blossoms, of about one centimetre in length. The blossom is widely bell-shaped (four millimetres), the leaves five millimetres long. The eight outer leaves are dark green on the back and have a long, triangular, transparent point. The inner leaves are twelve in number, and probably of a pale-pink color. These are the flower-leaves proper; they are spatulate, blunt, smooth-edged, and about five millimetres long.

The numerous pollen vessels are attached one above the other on the inside of the flower leaflets. They are shorter than the perigone leaves.

The filaments are from one and one-half to two and one-half millimetres long and white; the anthers hardly half a millimetre long and yellow.

The tube-like pistil is open at the top, and is not quite as high as the perigone leaves, yet considerably longer than the pollen-holders.

The rudimentary fruit is embedded in the leaf, and is about one and one-half millimetres long. The fruit is an oblong berry, six millimetres long, and contains about fourteen seeds, which are about the size of a mustard-seed.

The plant is nearest related to the *Anhalonium Williamsii* Linn. (country unknown), and yet differs from the latter very materially in form. This is especially noticeable in the peculiar felt-like form of the single bunches of hair, which in the *Anhalonium Williamsii* are of a purer white, silkier, and longer; also the great hair cushion is not nearly so strongly developed in the last-named species. In this species the inner perigone leaves are pointed, and have a dark line traced on the outside, also the pistil is shorter than the pollen vessels.

This new species makes the seventh known of the Anhalonia. They are as follows: *A. prismaticum*, *A. elongatum*, *A. areolosum*, *A. sulcatum*, *A. Engelmannii*, *A. Williamsii*, and the one which is the subject of this article.

* D. and Ch. Livingstone, "Narrative of an Expedition to the Zambesi," London, 1865, chap. xxiii. p. 467.

It is by no means surprising that this species should have for so long a time remained undiscovered, for all Anhalonia grow on high and rocky peaks and in most inaccessible places. They are frequently found on chalk cliffs, into which they penetrate with their long roots.* These Melocacteæ differ materially from all other Cacteæ in their geographical and natural distribution, as has been pointed out by Lemaine. These thrive well even in our latitudes, whereas the Anhalonia grow very poorly.

General History of the Cacteæ.—In ancient medical writings no mention is made of Cacteæ.

Plinius† speaks of these plants, and refers to them as a plant which is indigenous to Sicily, and which has a stem which from the root grows along the ground, the leaves of which are wide and thorny. The stems were called cacti, and were used as food even when old. Attached to the seeds was a wool-like body called pappus. If this and the covering of the calyx were removed, a soft, tender marrow or pith would be revealed. Perhaps this was some sort of *carduus*, the exact importance of which may as yet not be understood.‡

In a corollary§ of Chermolans of Dioscorides an opinion is expressed that the plant, which is referred to as "axos,"‖ and about which is said, "Pappi recentes periculum afferunt," is nothing else than a cactus. Still, there is nothing to confirm this.

Although Cacteæ have for ages past been known and probably made use of by native American tribes, yet, as far as the literature of the plant is concerned, it appears to be quite modern. In the year 1790, Willdenow, in his "Species Plantarum," makes mention of twenty-nine kinds of Cacteæ, and in the year 1846 over eight hundred different species were recognized and grown in hothouses. But even to-day we are very far from having any complete list of this family; and this is especially due to the wide distribution of the plant, which, speaking roughly, stretches over ninety-five degrees of latitude.¶

If our botanical knowledge of Cacteæ is still incomplete, how much more so is our knowledge of the medicinal and chemical properties of the plant. In this line little or nothing has been done, and a large field for labor is opened before us.

Many years ago Büchner** investigated the milky sap of a few Cacteæ (*Mamilaria cirrhifera*, *Cereus flagelliformis*, *Cereus speciosissimus*), and, besides finding albumen and mucins, discovered also the presence of various vegetable acids in combination with lime. Of these and similar experiments, which, from a medical point of view, were valueless, Descourtilz†† speaks of a few chemical properties.

In the *Peirescia lychnidiflora* (*Cactus fimbriatus*) he found a resinous, gummy, odorless sap, which, besides albumen and other substances, was found to contain a very volatile, nauseous principle when subjected to heat.‡‡ In the *Peirescia aculeata*§§ this substance was not formed. There was, however, also discovered in the sap of the *Cereus grandiflorus*‖‖ a sharp, resinous gum, which hardened quickly when exposed to the air, and a very volatile principle. The fruits of the *Cereus triangularis*¶¶ contain a slimy, saccharine body, malic acid, and coloring-matter.

With these scanty accounts, which hardly even deserve to be called superficial, ends our chemical knowledge of the plant. This is not taking into consideration some technical experiments which were made with the coloring-matter found in various Cacteæ. It is very surprising that our previous knowledge has been so slight, as Cacteæ are used by numerous tribes and people as an indispensable article of diet, and among many as a most efficacious drug. The juicy stems of many Cacteæ are a source of refreshment to both men and animals in regions where water is scarce.*** Horses and donkeys will crush the plant with their hoofs, and then eagerly lap up the juice. The mild, white sap of the *Echinocactus Wislizeni*, which grows in the deserts, serves as a means for the weary traveller to quench his thirst. The fiat sprouts of the Opuntieæ are eaten to a very great extent both by Indians and whites. The seeds of the *Echinocactus Wislizeni*, when roasted and crushed, are very palatable, and

* C. F. Förster's "Handbuch der Cacteenkunde." Published by Th. Ruempler, Leipzig, 1886, p. 235.

† Plinius, "Natural History." Published by Wittstein, Leipzig, 1881, vol. iv. p. 103.

‡ Wittstein, l. c.

§ Dioscorides, "Commendat. ab Egnatio Veneto," Venitiis, 1516; Chermolai Barbari Corollarii, libri v., lib. iv., dclxxxxv. p. 81.

‖ Liber vi., caput xl., fol. cxxv.

¶ Förster, l. c.

** Büchner, "Archiv der Pharmacie," vol. xlix. p. 120.

†† M. E. Descourtilz, "Flore Pittoresque et Médicale des Antilles." Paris, 1821.

‡‡ Vol. v. p. 160.

§§ Vol. iv. p. 292.

‖‖ Vol. i. p. 277.

¶¶ Vol. vii. p. 287.

*** Förster, "Cacteenkunde," Introduction, chap. ii.

can be made into bread. Cactus fruits are largely eaten; principally the fruits of the *Cereus giganteus* are particularly relished by the Arizona Indians and the natives of Southern California. From these are prepared the well known and highly-intoxicating "Tiswine." Also the *Cereus Thurberi* (Mex. *Pitahaya*) is used. The same may be said of the fruit of the *Opuntia Engelmannii, Camanchica, Raffinesquii*, etc.; these are commonly known as Indian figs, "Tunas." Also in Southern Italy, in Greece, and in Spain the fruit of the opuntia is considered to be a very palatable food. The fruit of the *Peirescia aculeata* is very extensively used in the West Indies. Numerous examples might still be added to the above list which would show how widely these fruits are both known and valued as food and dainty.

When used *medicinally*, the leaf as well as the fruit is considered to be of value. The latter is crushed, boiled, or roasted, and then mixed with milk, and among the Antillese is considered to be an invaluable emollient for "drawing" or ripening boils, etc. In acute ophthalmia the pulp is boiled and then laid as a cataplasm on the eyelids. Also the fruits of the *Cereus triangularis* find use as demulcents, while those of the *Peirescia aculeata* are prepared as a pectorant, which contains antiseptic properties and greatly relieves coughing.

I have mentioned above that the milky juices of various Cacteæ are merely indifferent, drinkable, slimy fluids. There are, however, many exceptions to this rule.

In several species, among which are the Cereastreæ, this sap is very powerful, and in its action upon the animal tissue is very similar to that of the Euphorbiaceæ; and the toxic action of the former has been frequently mistaken for that of the Euphorbiaceæ. I have before me a work, written not very long ago,* which states that the poison of the Annagos of the Dassa Mountains (north of Dahomé) is prepared from a certain cactus.

This statement must, however, be looked upon as false, as no Cacteæ are indigenous to that portion of Africa. The writer undoubtedly refers to a Euphorbiacea.

The least active seems to be the slightly-acid sap of the *Cereus flagelliformis*. In the West Indies it is mixed with gummy syrups and castor oil and used as an anthelmintic, both for children as well as adults,† and is further applied to wounds in order to "chase away all worms." The *Opuntia reticulata* is similar in action. The sap of the *Cactus pentagomos* is said to remove warts and superfluous hair.‡ The *Cereus grandifloris* is still more active. The sap when applied to the skin for any length of time causes almost unbearable itching, erosion, and finally pustules. If the sap is burned in a room the inmates will be attacked with sneezing, coryza, angina, and even hæmoptysis. If chewed, it causes a sensation of burning and nausea. If introduced into the stomach in large doses, it gives rise to violent vomiting, painful dysentery, and other symptoms which are caused by the great irritation of the intestinal canal. In spite of this, this drug is looked upon as a valuable vermifuge, but is only given in connection with gum or syrup. (The thickened juice, in quantities of .12 to .6 gramme, is mixed with sixty grammes of syrup of mucilage, or ten to thirty drops of the juice with the above quantity of syrup.)

Finally, we must also mention the sharp and burning sap of the *Peirescia lychnidiflora* (*Cactus fimbriatus*). Although this is sold among the Antillese, and is supposed to possess both diuretic and cathartic properties, yet Descourtilz warns against its use, as the cactus is most similar to the Euphorbiaceæ in its caustic properties, and even will cause the mucous membrane to blister.

This is all that so far has been discovered regarding the pharmacological and toxical actions of various Cacteæ. All the literature on the subject I have wellnigh exhausted.

The following observations of mine differ very materially from the above, and I present them to the medical world merely as an introduction to a work which, in the near future, I hope to make more full and complete.

It is impossible for me at present to state how rich a harvest my labors will bring me. For some time, at least, I will continue my researches until I reach some definite conclusions.

Introductory Remarks on the Chemistry of Anhalonium Lewinii.—In order to obtain a pure substance I went through quite a series of experiments,—precipitating the watery extract with plumbic, acetic, and phosphoric acids,—but was not able to produce any sufficient quantity of pure material with which to experiment. The fluid extract is of a yellow-

* John Duncan, "Travels in Western Africa." London, 1847, vol. ii. p. 193.

† Descourtilz, l. c., tome i. p. 285.

‡ Ibid., tome i. p. 281.

ish-brown color, very slimy, has a slight odor, and tastes intensely bitter. When treated with alkaloid reagents, it gives the usual precipitates, and is free from acid (tannic acid ?).

The following methods of procedure led to the desired results :

1. The alkaloid fluid extract should be well shaken up with ether and the latter allowed to evaporate.

2. The powdered residue is extracted with petroleum ether in a cooler (Rückflusskühller) and then exhausted with hot alcohol. This alcoholic extract is replaced by water, filtered, and allowed to evaporate at a low temperature until it is of a syrupy consistency ; it is then made alkaline and shaken up with acetic acid.

3. The drug is extracted with acid alcohol under the influence of heat, the chlorophyll overcome, shaken up with charcoal, filtered, evaporated until as thick as syrup, rendered alkaline, repeatedly shaken with fresh quantities of ether, and then the latter allowed to evaporate.

By either of the above methods a yellowish syrupy substance is obtained which soon becomes dry and tough. It has a peculiar odor, and is alkaline in reaction, is slightly soluble in water, and upon the addition of acids is easily dissolved. After the evaporation of such a solution, for instance, of a sulphuric acid solution, needle-like crystals are formed. These are easily soluble in water, and give reactions which I will refer to later on. A sufficient quantity of these crystals were procured for the following experiments, in the bottom of a glass vessel in which I had shaken up the alcoholic extract (in acid solution) with ether. Afterwards these were again rinsed off and cleaned off with absolute alcohol. This basic, syrupy substance I will for the present give the name of anhalonine. A more complete chemical description of the characteristic properties of its salts I will bring to the notice of the profession as soon as I have made further experiments and researches myself.

The crystals which I procured were colorless or with a slightly yellow tinge and needle-like. They dissolve with comparative ease in cold water, but much quicker in hot. The solutions are neutral in reaction. In cold, absolute alcohol they are almost insoluble ; warm alcohol dissolves them after some time. Ether absorbs but little from the acid solution of the crystals ; more, however, from alkaline solution. The same may be said of acetic ether. Alkalization of the watery extract colors it yellow ; acidulation of the same makes it colorless again.

The crystals burn with a bright flame and puff up greatly in size. They, however, burn easily and entirely. During burning they emit a strong smell of horn. Nitrogen is easily traced by Lassaigne's test. If only a very small trace is placed upon a glass dish, and touched with a drop of sulphuric acid (to which a little nitric acid had been added), it will immediately assume a permanganate color, which, after some time, turns into yellow.

Also extremely small quantities of the same will give the glucoside reaction. After boiling with muriatic acid, copper is actively reduced in the alkaline solution.

The reactions of this substance in acid solutions, when treated with various reagents, may be seen by the following diagram :

	Iodide of potassium.	Picric acid.	Chloride of gold.	Phospho-Wolframic acid.	(Tannic?) acid.	Chloride of platinum.
Precipitate	Brownish-red amorphous.	Yellow crystalline.	Brownish-red crystalline.	White crystalline.	Yellowish-white amorphous.	After shaking flaky crystalline.
In alcohol	Soluble.	Easily soluble.	Soluble.	Insoluble.	Easily soluble.	Soluble.
Ether	Soluble.	Easily soluble.	Soluble. When warmed the solution colors blood-red.	Easily soluble.	Easily soluble.	Soluble.
Acid	In excess, soluble if slightly warmed.	In excess of muriatic acid, soluble.	Soluble in excess of muriatic acid.	Insoluble.	Insoluble.	Soluble.
Ammonia	Soluble.	Soluble.	Soluble.	Soluble with opalescence.	Soluble.	Soluble.
Excess of the precipitating medium.	Insoluble.	Insoluble.	.....	Easily soluble.	Partly soluble.	Insoluble.

I believe it safe to take for granted another active principle in the plant besides anhalonine, which is more active than the latter.

Action of Anhalonium Lewinii and of Anhalonine.—My first experiments, which were made with a watery decoction upon both warm- and cold-blooded animals, showed me, to my astonishment and surprise, that I was dealing with an intensely poisonous substance.

If only a few drops of such a decoction is injected into a frog, almost as soon as the needle is withdrawn his entire aspect changes.

His sides fall in, and instead of being rounded, the creature's contour becomes shrunken and wasted, which gives him quite a mummified appearance.

Simultaneously with these appearances, or immediately afterwards, the animal raises himself upon his four extremities, which also appear shrunken and thin. In this position he remains standing for some time, looking very much like a quadruped; then he crawls around, still keeping this position. In about ten or fifteen minutes, or sometimes even sooner, he sinks down again into a squatting position, and, after some time, regains his normal condition, and "is himself."

The above symptoms occurred in the many cases almost always. The drug seems to cause an acute muscular spasm, especially of the diaphragm and the abdominal muscles. After the actual spasm is over, it takes some time for the animal to recuperate itself. The reflex excitability caused lasts for a long or short time, according to the strength of the preparation used. In this the action of the drug is analogous to that of strychnine. The frog will twitch when touched, even ever so gently, and spreads out his toes as far as possible.

The duration of this condition varies. If the dose given was a small one the symptoms would last from five to eight days. Usually this condition will become so aggravated that every irritation, no matter how slight, will cause a tetanic convulsion. The head is drawn back so far that the body is bent like a bow, and becomes as hard as a board.

In cases of slight poisoning the animal's condition would become normal very soon after the tetanic condition had passed away. Mostly, however, the creature would retain the position in which it had been during the convulsion.

I was often struck with the great endurance the animals showed to these attacks of tetanus. But in some cases death occurred very soon.

Even after the animal had been beheaded the trunk could be thrown into a convulsion by slight irritation. In a larger number of experiments this possibility ceased if the spinal cord was severed below the fifth vertebra; in others, again, this had no effect. The severing of the plexus iliacus of one side prevented that limb being affected by the poison. I failed to notice any influence upon the action of the heart.

Corresponding results to the above were obtained when a watery solution of the alcoholic extract was used, and also when other preparations, some of which I have spoken of, were tried.

The subcutaneous injection of anhalonine in a clear, colorless solution (acid) caused similar symptoms as described above. The primary collapsed condition, followed by the reflex excitability and tetanic convulsions.

Pigeons, when given 1 to 2 Pravatz syringefuls in injection of the concentrated watery acid extract (previously warmed and shaken up with charcoal), begin to vomit in a few moments. In a few cases I observed continued and convulsive vomiting. In the intervals between the attacks the bird will spread its wings with an almost convulsive movement. It crouches down to the ground with its wings either drawn up or spread out. If the cage is shaken or jarred the bird will twitch convulsively. In about twelve minutes it beats convulsively with its wings, stretches itself out, falls over and opens its bill, while the head is drawn sharply back. This convulsion passes off, but the bird is unable to rise again. After the convulsions become more frequent it dies either during one or, as frequently happens, during the interval betweeen them.

An autopsy showed that the heart's action had ceased in diastole.

If the dose employed was but small no toxic symptoms were observed besides vomiting.

I have given the poison to the same pigeon eight or ten different times, on different days, without causing any other symptoms besides vomiting. The subcutaneous use of acidulated (sulphuric) anhalonine also gave rise to these symptoms of vomiting. As my supply of the drug was but limited, it is impossible for me to say whether or not this form could have also produced tetanic convulsions if given in sufficiently large doses.

In one case, of a young dove, a dose of this preparation caused its death in about six hours. The animal remained in a narcotic condition, but from time to time convulsive twitchings of the head were noticed.

The fluid extract was also given to rabbits in 12-gramme doses; also subcutaneous doses of a watery solution of the alcoholic extract, 2 or 3 syringefuls being given at a time; both of these gave rise to toxic symptoms precisely like those caused by strychnine or brucine.

The action of the drug from the stomach was, however, much slower than its hypodermic action. In rabbits it did not begin for four hours. The animal trembled all over as far as could be seen without disturbing it, but the moment I touched the cage or jarred it the typical reflex tetanus would begin. The ex-

tremities would be stretched out and head and neck drawn back. The attack would pass off and the animal would again gain its natural position and normal appearance. Respiration was very frequent. The fore-paws slip out in front and the head drops to the ground. Soon a second convulsion will take place. The heart with comparative strength will pulsate even after respiration has ceased.

The thickened etheric extract of the alcoholic preparation of the plant, when made alkaline, shaken with petroleum ether (this allowed to evaporate), dissolves easily in slightly-acidulated water. This, when given hypodermically, caused tetanus in about twelve minutes. The trembling animal raised itself up rigidly upon all four feet and died during the third convulsion.

This description proves the intensity of the poison. And it is the first time that any such violent symptoms have ever been accredited to a Cacteæ.

It will now be necessary for me to further investigate the chemical properties of this poison, and if possible be enabled to report something which will explain its actions. Of next importance to this will be the investigation and study of other Anhalonia; and also to find out what way and to what an extent these "muscle buttons" are used. I trust it may not be long before I shall be able to bring the result of my further investigations before the notice of the profession. It is far from improbable that this substance may also be of therapeutic value.

BERLIN, March, 1888.

ON THE TREATMENT OF RHEUMATISM AND NEURALGIA BY THE ELECTRO-VAPOR BATH AND MASSAGE.

BY F. E. STEWART, M.D., Ph.G.,* WILMINGTON, DEL.

(Continued from page 170.)

II.—ACUTE RHEUMATISM.

IN the first part of this article, under the heading muscular rheumatism, I spoke of the loose and inexact manner in which the term rheumatism is used even by professional men. As Professor Palmer, of the University of Michigan, has said, "Acute rheumatism is a sufficiently well-defined disease, but the terms rheumatism and rheumatic are often applied to nearly all pains which are somewhat more constant than those that are called neuralgia and neuralgic, but which are not accompanied by much constitutional disturbance."

This author goes on to say, "The aches and pains so common to subjects with lithic acid in the blood and lithates of sodium in the tissues, are popularly and often professionally called rheumatic. The darting pains of locomotor ataxia and the periosteal affections of syphilis are sometimes called by the same name. All neuralgias are spoken of as rheumatism, and various arthropathies, sciaticas, and 'cricks' in the back have this appellation given to them. The term may be, as stated by Fothergill, a great comfort to those who are diagnostically weak, as it may cover a quantity of ignorance and satisfy the patient; but it often gives a false sense of security in grave affections, and leads to inefficient or wrong methods of treatment."

As persons suffering with all the above conditions are sure to come to you for treatment, asserting that they are suffering with rheumatism, your reputation for curing this affection will depend very much upon your accuracy of diagnosis; and, as some of your cases will come from the hands of physicians who have made a mistake in diagnosis, a great deal of tact is necessary if you do not wish to offend either the patient or his former medical adviser.

Professor Bartholow defines acute rheumatism as "a constitutional disease, characterized by fever, inflammation of the joints, occurring in succession, and by a tendency to attack the peri- and endocardium."

After or without prodromic symptoms, consisting of muscular soreness, neuralgic pains, stiffness and soreness of certain joints, impaired appetite, coated tongue, constipation, etc., the disease itself is ushered in by a chill or chilly sensation, followed by high temperature and the usual concomitants of fever. The ankle-joints are generally the first to suffer, becoming tender, hot, swollen, and red, and every attempted movement attended with the most exquisite suffering. Other articulations soon follow, and are affected in a similar manner, and the disease goes through a course too well known to the profession to require description. The urine is concentrated, strongly acid in reaction, loaded with urates and uric acid, and albumen is generally present in small quantities.

As is well known, the course of acute rheumatism is much influenced by complications, the most important being those of the heart.

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The disease manifests a tendency to a spontaneous cure, generally between the fifteenth to the twenty-first day; but, although it may be classed as a self-limited disease, its course is shortened by treatment.

In acute rheumatism I can see no indication for the application of the electro-vapor bath and massage treatment, although I am aware that some of its admirers do not hesitate to say that it will cure an attack. But in the chronic form, especially following the acute, I have had excellent success from this treatment.

III.—CHRONIC RHEUMATISM.

This disease is defined by Bartholow as an affection of the articulations, characterized by pain and stiffness, with some swelling, occurring chiefly after middle life, and influenced by atmospheric changes.

This author goes on to say, "The trouble is limited to the articulations affected and to the neighborhood. The joint is swollen more or less and its movements are constrained. It is not red and hot, unless some recent inflammatory mischief has been lighted up; pain is felt in the joints spontaneously, and soreness whenever the joint is moved; an acute pain is experienced when there occur changes of temperature and the barometer is falling. Patients soon learn the indications afforded by their pains when storms are imminent or other atmospheric perturbations. The joints are stiff; their movements slow and jerking. As the sheaths of the tendons are thickened by deposits, movements cause more or less creaking, like rusty machinery, which may be audible. In the morning, on rising, movements are particularly slow, rigid, jerking, so that dressing is accomplished with difficulty; use renders them limber and supple. . . . The muscular pains which usually accompany the joint affection are due to the extension of the disease to the sheaths of the tendons in the neighborhood of the articulations. Myalgia is a frequent coincident affection, and hence it is confounded with rheumatism."

I have quoted from the above authority, first, because of his well-known position as a medical teacher and writer; and, second, because he highly recommends Turkish and Russian baths, electricity, and massage in the treatment of chronic rheumatism. After speaking in favorable terms of cod-liver oil, iodide of potassium, muriate of ammonium, and the lithium salts, and, in cases of anæmia, the use of iron, he says, "Local applications are highly important. Frictions of the affected parts with cod-liver oil after a general warm bath are an excellent expedient. Warm baths, Turkish or Russian baths, with local douches, are often, but not invariably, highly useful. The method of friction and movements known as *massage* is probably the best of the local means of treatment. . . . In chronic rheumatism excellent results are obtained from the use of galvanism. A current of large volume and low intensity should be applied to the afflicted joints to procure absorption of effusions, and the sympathetic ganglia should also be brought within the circuit. When galvanism is to be applied, the positive pole should be placed over the principal nerve-bundles above, and the negative pole pushed over the joint region. Each joint should be taken up in turn and the applications be faithfully made, AND THE ELECTRICAL TREATMENT PURSUED FOR A LONG TIME."

The capitals are mine. One of the hardest things to contend with in the treatment of chronic rheumatism, both on the part of the doctor and of the patient, is the fact that "chronic rheumatism is a very chronic disease." The best authorities agree to the importance of the above course of treatment, and that a persistence therein is attended with most beneficial results. They also agree that, in spite of it, a long continuance of the treatment is necessary to secure these results. Yet patients will come to you expecting that a disease which is so severely chronic in its nature, and has refused to yield to ordinary remedies employed by the most skilful physicians, will immediately disappear after one treatment with electro-vapor bath and massage, or, at the most, after two or three applications.

The electro-vapor bath which I employ is peculiarly adapted to the treatment of chronic rheumatism. It is so arranged that there can be used in combination either the Turkish (hot-air) or Russian (warm-vapor) baths, galvanism, the warm douche, and the hot foot-bath. There can be no manner of doubt that this combination is far more effectual in removing deposits in the joints than either of these agencies employed alone. This is well instanced in the treatment of sprained ankles. I have repeatedly treated cases of sprain when the ankle has been badly swollen, red, and painful, and where the blood has settled in various parts, producing the characteristic black-and-blue appearance, and with one treatment I have succeeded in completely removing the pain, swelling, and discoloration.

After the bath, massage and both active

and passive movement should be thoroughly applied,—first by means of the hand, then by the Taylor mechanical manipulator. The results of this treatment are exceedingly gratifying to both patient and physician, provided the means employed are persistently and perseveringly applied. The probabilities are, however, that after a few treatments the patient will be so greatly improved that he will consider himself cured. He will then omit his treatment until, debilitated by an attack of indigestion, by fatigue, or by exposure to cold and dampness, another attack will warn him back to his electricity, massage, and baths. One or two treatments will again set him up, and he will again forget to come until another "nip" of the rheumatism shows that the foe is not yet vanquished. If he has been for some time a victim of this malady, and has tried various methods of cure recommended therefor, including mineral springs and patent medicines, he will probably continue as your occasional client for many years to come.

The citation of two or three cases of chronic rheumatism which have been under my care will illustrate the truth of what I have said in regard to this chronic affection.

Case I.—Female, aged 35; chronic rheumatism following an acute attack; endocarditis. After several mild attacks of acute rheumatism, this patient was seized with an attack of more than usual severity, confining her to her bed for several months, and invading the structures of the heart. The inflammation seemed to be limited to the membrane lining the left cavities of the heart, affecting particularly the mitral valve. She was sent to me some time after the acute symptoms had subsided, suffering with pains in the ankle-joints, knees, and hips. The pain was not very intense, but was more pronounced during movements of affected joints; there was some tenderness on pressure, also some swelling of the ankle-joints. The ankles and articulations of the feet seemed to be affected in the greater degree, causing a great deal of pain on locomotion. She also had attacks of severe pain in the left side, palpitation of the heart, and dyspnœa. The attacks of difficult breathing were worse from lying down, compelling her to sit up and gasp for breath. There was a marked mitral murmur.

It is hardly necessary to go into the details of the treatment in this case, as they were quite similar to those already described in the first part of this article. Electro-vapor baths, followed by general manual massage and mechanical massage applied to the affected joints, were employed. After ten treatments she was so completely restored to health in all respects that she deemed herself cured, and discontinued her treatments; and about a year afterwards, being warned by the advent of slight rheumatic pains in her joints, she came for another treatment, which seemed to be all that was necessary to put her again in good condition. The treatments were taken every other day; and it is interesting to note, in this connection, that the pain and stiffness in the feet did not yield until a thorough treatment with the mechanical manipulator, although massage with the hand was applied conscientiously and persistently.

Case II.—Male, aged 53; chronic rheumatism; case of ten years' standing. This patient had employed all the ordinary remedies for rheumatism without result. Turkish baths relieved him somewhat, but electro-vapor baths with faradic current did better. When he came to me I changed the form of electricity to the mixed current, and prescribed the pancreatin and quinine mixture already referred to, for he was suffering with dyspepsia and chronic constipation. I also added massage to the treatment with much benefit. Under this régime he is kept in most excellent condition by taking one or two treatments occasionally at intervals of a month or more.

Case III.—Male, aged 60; chronic rheumatism. This case, like Case II., was subacute from the beginning. The pain and stiffness was confined to the knees. Three treatments were sufficient to limber up the affected joints and nearly restore him to his normal condition. As there was some creaking in the joints upon forcible flexure of the knee, I prescribed iodine with iodide of potassium in solution, directing him to continue it for some time, and at last account there were no symptoms of return of his malady.

It is useless to weary the reader with further cases. I concur entirely with the author whom I have already quoted (Bartholow). "Chronic rheumatism is a very chronic disease." "There occur but few changes from month to month. Exposure to cold, and especially to cold and dampness combined, increases the pains and the joint changes; and warmth, especially removing to a warm climate, lessens them. Fatigue, manual labor, especially in cold and damp situations, and clothing insufficiently warm, promote the disease. In forming conclusions as to the future course of the malady these elements must be taken into consideration. A

perfect recovery must be regarded as possible only in those cases treated at the outset under favorable hygienic and personal conditions. When deposits have taken place, and the cartilages and synovial membrane are changed in structure, a cure cannot be effected. In old cases tendinous anchylosis may result, and, the muscles wasting, the limb will appear much deformed."

But I would also add, that if proper care is taken to protect the body from changes in temperature by the use of suitable clothing, especially by the use of silken underwear, and due regard is paid to the general health, avoiding excessive fatigue, mental or physical overwork, worry, and all causes tending to debilitate the system, combined with daily exercise and recreation in the open air, and care in regard to diet, and, in case of a rheumatic attack, the employment of electro-vapor bath and massage, persons subject to rheumatism can be kept in a most excellent degree of health in the larger proportion of cases.

In the next part of my article I propose to treat of the use of the electro-vapor bath and massage treatment in neuralgia.

(To be continued.)

PICHI—A FEW CLINICAL NOTES.

By J. H. Tressel, M.D., Alliance, Ohio.

Case I.—Mr. E. : American ; age 60 years ; farmer. In September, 1887, he had the misfortune to be run over by a wagon, receiving an injury in the lower part of the abdomen from which he suffered considerably, the inflammatory action in the parts being somewhat severe.

After running the usual course he began to improve. He so far recovered that he resumed his farm duties. But soon severe burning pain began to annoy him when urinating, accompanied by a frequent desire to perform the act of micturition. It was noticed that on standing his urine showed an abundant muco-purulent deposit. It was, of course, cystitis.

He was treated with the ordinary remedies by the family physician for two months. Receiving no benefit, he applied to me for relief. I first tried corn-silk, hydrangea, buchu,—in fact, all the usual agents for a month without any apparent improvement in his condition. I then determined to use fluid extract pichi (*Fabiana imbricata*). I prescribed 10-drop doses every three hours, withdrawing all other treatment. In ten days he returned, reporting that he was "somewhat better." On questioning him I learned that he had exceeded my prescribed dose, and had been taking at least 20 drops. I continued the remedy (using no other), but in larger quantity, cautioning him not to increase the dose, and expecting the medicine to last him two weeks ; but in eight days he returned, saying that he was much better, but that at his own risk he had again exceeded the dose prescribed, so that he had taken about 35 drops at each dose. I again prescribed pichi, with a strict injunction not to take more than 20 drops, but as before he heedlessly increased the portion, taking about 40 drops of the fluid extract. This dose caused nausea with a burning distress in the stomach, and he suffered from an indescribable sensation in the throat. He immediately came to me. I gave him a sound lecturing for disobeying instructions as to dose, and directed him to rest from treatment for a day or two, and then to continue at the dose last prescribed (20 drops). He followed my directions implicitly this time, and he has continued to improve until the present (March 11).

He reports that he is feeling quite well. The abnormal deposit in the urine has entirely disappeared, and the indications are favorable for a permanent recovery. Treatment has been discontinued.

Case II.—Mrs. M. ; Welsh ; age about 45 ; housewife. Had been afflicted with intense pain in passing urine for two days, when she called at my office for treatment. There was an abnormal quantity of uric acid deposited when the urine was allowed to stand a short time, and the urine was very acrid, severely excoriating the parts with which it came in contact.

I prescribed buchu and corn-silk, combined with opiates and alkalies, for two days, with scarcely any perceptible benefit. I then gave her fluid extract pichi in 10-drop doses every two hours. After the fifth dose she began to experience relief. When the eighth dose had been taken she expressed herself as being so much better that the interval between doses was lengthened to four hours.

The treatment was continued for two days longer, at the end of which time the remedy was withdrawn, there being no reason for its further use.

Case III.—Miss H. ; American ; age 18 years ; student. Was taken ill with malarial fever, which continued about three weeks, when she began to convalesce.

But she now commenced to complain of severe pain when she urinated. The urine showed only a slight excess of uric acid. There was hyperæsthesia of the neck of the bladder and of the urethra. Remembering my success with pichi, I at once prescribed 10-drop doses of the fluid extract every two hours, and after the third dose there was some relief. The size of this dose, or the short intervals, caused some nausea, however, and I was sent for at once. On arriving I ordered the intervals of administration to be lengthened to three or four hours. The nausea then ceased, and the pain caused by the act of micturition gradually diminished, so that at the end of the third day from the beginning of the treatment she felt entirely relieved, and medication was discontinued without any return of the unpleasant symptoms.

CASE IV.—Mr. R.; English; age 37 years. This man, after some unusual exertion in the machine-shop where he is employed, passed out of the shop into the open air of winter while still greatly overheated. He was taken at once with a severe chill, when he repaired to a warm room until the chill passed off.

About ten o'clock the same night he attempted to urinate, which caused such intense pain that he was compelled to desist. I was called to see him, and I ordered him to make another attempt to evacuate his bladder, but he said, "No, I cannot; the pain is too great." I then tried to pass a catheter, but it caused so much pain I could not proceed. By the aid of cocaine I finally succeeded in drawing off his urine, but the pain and the desire to urinate continued.

I put him on 15-drop doses of fluid extract pichi every two hours. After the fourth dose he stated that he had some relief. The remedy was continued in this quantity (15 drops) at intervals of three or four hours for thirty-six hours longer, when he reported that he was "all right." The pichi was then discontinued. I followed this with a moderate tonic treatment for a few days. No further trouble ensued.

My experience with the drug has been too limited to warrant me in stating any definite conclusion regarding its therapeutic value or the manner of its action. Therefore I submit my report of these cases without comment, except to say that no remedy was used but the pichi, with the exception of Cases I. and II., and in these the usual remedies were withdrawn before the pichi was prescribed because they were failures.

A NEW FORM OF SUPPOSITORY.

BY SAMUEL G. DIXON, M.D.,* PHILADELPHIA, PA.

THIS cut is intended to represent an improved model for rectal suppositories. Its shape serves to lesson the unpleasantness and inconvenience of ordinary rectal medication and alimentation. The modification consists principally in reversing the old model and forming a short cone-shaped piece to its base, making it into the point, leaving the long cone to serve practically as a handle until the thickest portion of the suppository (formed by the conjunction of the bases of the two cones) is past the internal sphincter muscle, when the contraction of this muscle upon the long reversed cone will be to force the entire mass farther up the rectum.

NAPHTHOL AS AN ANTISEPTIC.

DR. BOUCHARD, of the Paris Academy of Sciences, strongly recommends naphthol as an antiseptic, especially for the disinfection of parenchymatous tissue and cavities which are only reached with difficulty. He recommends it for the following principal reasons:

1. It is only slightly soluble, and in the above cases insoluble antiseptics are preferable to those that are soluble, as they are not absorbed, and so do not affect the general organism, but still make any fermentation or growth of micro-organisms locally impossible.

2. It is five times as active as carbolic acid, three times as active as creasote, and is superior to sublimate, which is ten times as active as naphthol, because it is one hundred and eighty-seven times less poisonous.

Comparisons of naphthol with other drugs, with reference to their antiseptic and toxic actions, give the following figures:

	Antiseptic. Per cent.	Toxic. Per cent.	Pathological. Per cent.
Iodoform	1.27	0.50	0.05
Iodol	2.75	2.17	1.25
Naphthalin	1.51	3.40	1.00
Naphthol	0.40	3.80	1.10

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The Therapeutic Gazette

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Leading Articles.

THE TREATMENTS OF COLDS AND BRONCHITIS.

AMONG the most vivid recollections of our boyhood life is the close connection which in those days existed between Epsom salts, antimonial wine, syrup of squills, and an ordinary cold or mild bronchitis, with the addition of say a gargle of sage-tea if the throat happened also to be afflicted. In the Philadelphia household of that date the good housemother knew as well as the doctor the natural succession in which these remedies were exhibited, and their terrors to us were such that they were only rivalled by switches from a bush which was cultivated for domestic purposes in the house-yard. Time has changed these matters as well as others, and Epsom salts and antimonial wine have in great part disappeared from the sick-room, having been replaced by remedies less nauseous and, to our thinking, even more effective. Possibly owing to the annual recurrence of colds and bronchitis the thought has come into our editorial head that perhaps it would be not out of place to occupy a few columns of the THERAPEUTIC GAZETTE with a discussion of what are the best methods of treating ordinary colds and mild bronchitis. When the cold is a wide-spread general one, involving the whole body in a condition which, according to our thinking, is a form of subacute rheumatism, with aching pains and general wretchedness, a free jaborandi sweat, followed by a few full doses of quinine, will often liberate the sufferer at once, especially if the sweats be aided by mercurial or other purgation. Coryza has long been a bugbear to the family doctor, but, thanks to bismuth and cocaine, we are now enabled to view it without tremor. We learnt also quite recently a curious lesson from an old barber. Happening to be in the shop when suffering from a violent cold in the head, the grizzled remnant of a colored regiment, now Junior Vice-Commander (Brigadier-General) of the Grand Army of the Republic, offered at once to cure us by manipulation. After much banter and the agreement of no cure, no pay, the editorial head was well manipulated by the mysterious procedure known as dry shampooing, and the result certainly was that the coryza disappeared. Bismuth and cocaine injections into the nose we think almost invariably, however, bring relief without calling in the assistance of the manipulator.

When the bronchial tubes are distinctly affected the so-called expectorant remedies are of course indicated. As of old, these still are best divided into three groups: first, the narcotic expectorants, which are to be employed to allay excessive cough and quiet nervous irritability; second, the sedative expectorants, to be used in the first stages of a bronchitis to facilitate secretion and expectoration; third, the stimulating expectorants, useful in the advanced stages of a bronchitis when expectoration has already become free.

The advantages which can be obtained in bronchitis from the use of ordinary narcotics, such as morphine and hyoscyamus, and the difficulties which surround their action, are too well known to our readers to require comment. It is, however, perhaps not as widely recognized that chloroform is one of the most valuable remedies that we have for quieting cough; perhaps it may also be allowable to call attention to the fact that in nervous or hysterical females or males in whom the nervous element dominates all the bodily functions, often the best expectorant mixture is simply one containing pure narcotics. A mixture which we have often used with great advantage, and which is readily prepared in the household without the intervention of the

apothecary, is made by adding a dessertspoonful each of whiskey, paregoric, and glycerin, and 30 minims of chloroform. The whole to be well shaken and to be taken in teaspoonful doses *pro re nata*. Many a night's rest have we seen secured by placing a little bottle tightly corked of such mixture by the bedside of the patient and allowing him to take a sip whenever required. In our earliest medical teaching was inculcated a profound faith in the value of hydrocyanic acid and wild-cherry bark as a means of quieting a cough. It is well known that if a patient survives the first twenty minutes after the ingestion of a toxic dose of prussic acid the probabilities are very strong that recovery will occur, and that there are not more than one or two cases on record in which death has resulted from such dose after the first hour following the ingestion. In two hours usually all sensible effects have disappeared. If a remedy be so fugacious in its action that a poisonous dose leaves no perceptible influence two or three hours after its taking, how long does the effect last of a dose which is so small that at no time it has any perceptible influence? Kegs of prussic acid have been administered in minute doses three or four times a day for the relief of the nervous symptoms of bronchitis. If the remedy in such doses has any effect it will be simply to exert a momentary influence, and the administration of prussic acid three or four times a day represents a method of therapeutics which we have styled in the lecture-room "kangaroo therapeutics," because it consists in attempting to make the patient travel the road towards health by a series of physiological spurts or jumps. Wild-cherry bark preparations contain scarcely more than a trace of the prussic acid, and certainly are useless.

The ordinary depressing expectorants of our boyhood and of the text-books have in our practice been replaced very largely by the citrate of potassium. If tartar emetic or ipecacuanha be given in such dose as to produce prolonged nausea and vomiting, it will undoubtedly usually bring about free secretion in the early stages of acute bronchitis, but the method is so disagreeable and so exhausting that it is only to be tolerated when the patient is a robust man, to whom time is so important that it is essential that he be cured in the most speedy manner possible, even at great bodily inconvenience and some risk. Unless the older depressant expectorants be given in nauseating doses they have comparatively little power, and we think that any of our readers who will use the following cough-mixture in the first stages of bronchitis will never depart from its employment, unless some new remedy of greater power be discovered. The dose of it, of course, must be varied according to the strength and peculiarities of the individual patient. That which we indicate is for a robust man.

℞ Potass. citrat., ℥i;
Suc. limonis, f℥iss;
Syr. ipecac., f℥ss;
Tr. opii camph., f℥iii;
Syrupi, q.s. ad f℥iii.
S.—Dessertspoonful every two hours.

Of the older stimulating expectorants the only ones which still retain our confidence are the muriate of ammonium and the syrup of garlic. The ammonia salt does seem to have a very peculiar influence upon the respiratory mucous membrane. It is valuable in acute bronchitis when free secretion has once been established, but in some cases it seems also to have the power of bringing about secretion. In the rare instances in which the citrate of potassium mixture fails we habitually resort to the muriate of ammonium, and have often seen very good results. It must be remembered that its action is fugacious, and that it is comparatively of little use when given at longer intervals than three hours. It ought, indeed, to be administered at least every two hours, and when circumstances favor it, it is much better to use it every hour. The dose must, of course, vary with the frequency of administration, but from thirty to sixty grains should be given daily. Much larger amounts than this exert no toxic influence, and we have never seen the patient who would not for a time tolerate a drachm of the remedy a day unless there was some special irritability of the stomach. It may be given in capsules if the stomach be very insensitive, each capsule to be followed immediately by a drink of water; or it may be given according to the following prescription, which affords the best disguise that we have been able to concoct:

℞ Ammonii chloridi,
Ext. glycyrrhizæ, ää ℥iss;
Glycerini, f℥ss;
Mucil. acaciæ, f℥ii;
Syrupi,
Aquæ, ää q.s. ad f℥iii.
S.—Dessertspoonful every two hours.

Syrup of garlic is so disagreeable to most patients that it is very rarely used. In our own practice, in ordinary cases, the only stimulant expectorants used besides the muriate of am-

monium are oil of eucalyptus, terebene, and oil of sandal-wood, and occasionally oil of cubebs or copaiba. The doses of these remedies are so small and the taste of most of them so disagreeable, that they should always be administered in capsules. The oil of eucalyptus is perhaps the most efficient. It may be administered in an ordinary cold or a bronchitis so soon as free secretion has been obtained. Terebene is a little more stimulating than the oil of eucalyptus, and to be employed somewhat later in the disorder (5 minims). The oil of sandal-wood is about equivalent to terebene, while the oil of cubebs is employed still later in the disorder.

SPARTEINE.

OUR readers will remember that in the January number of the THERAPEUTIC GAZETTE we gave a summary of the results of the experiments of Dr. Maslowski with sparteine. Recently this alkaloid has been largely experimented with, and several articles on the subject have appeared in the leading medical and therapeutical journals of Europe.

Mitchell and Schroff were the first who made the toxic action of the drug a study. Fick* was struck by the remarkable analogy of sparteine, cicutine, and nicotine, and with the similarity of the physical properties of these alkaloids. He therefore instituted a series of experiments to ascertain whether the therapeutic actions of sparteine were similar to those of conine and nicotine, all these bodies being isomeric. The results of his experiments showed that this was not the case.

His experiments upon frogs and dogs show that it is a motor excitant, and has a direct influence upon the medulla oblongata. The drug seems to act as a direct poison on the excito-motor centre and the peripheric nerves' ends.

De Rymon's† researches with the drug confirm the results obtained by Fick, with the one exception that De Rymon denies the fact that the poison had any effect upon the peripheric motor nerves.

During the first period of the drug's action, the period of excitement, there was general tremor and a staggering gait, reflex hyperexcitability,—the least contact causing convulsions, both tonic and clonic; respiration labored; heart's pulsation quickened at first, but later was slow and feeble. During the second period, the period of collapse, the general weakness and feebleness became more and more apparent, the reflex excitements disappeared, the respirations decreased gradually with the heart's action. Death finally occurred from asphyxia during convulsions.

But the above are merely the toxic actions of sparteine; its therapeutic and pharmacodynamic properties seemed to have been entirely overlooked both by De Rymon and Fick.

The therapeutic action of sparteine upon the heart was first discovered, or at least first appreciated, by Laborde.‡

After having confirmed the toxic symptoms described above, Laborde observed that when given in smaller doses to dogs it regulated the heart's action, and although it increased the force of the systolic impulsions yet it decreased the rapidity of the pulsations.

The ascending line traced by the cardiograph was almost perfectly straight; this indicated an exceptional strength of the impulsions.

Laborde concludes that sparteine "augments the intensity and the duration of the cardiac contractions rather than their persistency."

An effect upon the pressure and the vasomotor system was also observed by him.

G. Legris states that sparteine diminishes the excito-motricity of the pneumogastric nerves.§

Sulphate of sparteine, when administered in fruit-syrups, beer, or coffee, is well endured by the digestive system. It does not cause the nausea or gastric pains which so frequently follow the use of digitalis. The only disagreeable symptoms which sometimes accompany its use is a slight diarrhœa, which, however, ceases as soon as the drug is discontinued.

Sparteine does not seem to have any special effect upon the kidneys. It is rapidly eliminated through the urine, and, although the drug itself had no diuretic action, yet it seemed to assist and to prolong the action of milk, caffeine, and other diuretics.

Upon the nervous system sparteine exerts an action in a healthy man which is materially different to its action upon cardiac patients. In a healthy man doses of 2⅓ grains of sulphate of sparteine have no effect whatever either upon the brain or upon the medulla.‖

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* *Arch. für Exp. Path.*

† *Thèse de Paris*, 1880.

‡ *Soc. de Biol.*, November 21, 1885.

§ "Sulphate of Sparteine as a Cardiac Remedy," *Thèse de Paris*, 1886.

‖ G. Legris, "On Sparteine," p. 26.

Although such symptoms as vertigo, headache, dizziness, palpitation, a feeling of heaviness in the chest, and a tingling sensation in the limbs, etc., are not usually produced by doses under 4⅔ grains, yet a dose of 1½ grains given as a cardiac regulator will frequently cause painful symptoms in accomplishing its results.* It is advisable, however, never to give doses exceeding 7$\frac{3}{10}$ grains a day. The drug should be used with special caution in cases of nervous palpitation which is met with in hysterical patients, with hypochondriac and psychopathic patients, in cases of chorea, in the treatment of palpitation in Basedow's disease, and in anæmic and chlorotic subjects; also with patients who are addicted to the tobacco-habit and in angina pectoris.

In a recent work by De Masius† sulphate of sparteine is said to exert the following effects: 1. It modifies the carotid pulsations of dogs. 2. In comparatively moderate doses it diminishes the excitability of the pneumogastrics, quickens the pulsations of the heart, which become less intense under its use, and decreases the rapidity of the respirations. 3. Toxic doses cause a paralysis of the pneumogastric nerves, asphyxia, and in consequence of the asphyxia also cause a change in the cardiac pulsations, which at first become stronger and slower, later very frequent and gradually losing in strength, and lastly, irregular, thready, and scarcely discernible. 4. The pressure of blood does not materially lessen until just before death. 5. The drug exerts no physiological effect upon the urine.

Regarding the therapeutic value of sparteine we quote in part the views of various practitioners, as summed up in a long and interesting article on the subject by Dr. Debierre.‡

G. Sée says in a recent article§ that he has used 1½-grain doses of a watery solution of sulphate of sparteine in six cases of myocarditis and valvular troubles, and that he has observed three principal actions to follow its use. The first was the revival and strengthening of the heart's and pulse's action, which was as equally marked and more prompt and lasting than the similar effect produced by digitalis. The second was the immediate regulation of the cardiac rhythm. The third was the increase of pulsations. All these symptoms took place in half an hour to an hour, and lasted for three or four days after the discontinuance of the remedy. The secretion of urine did not seem to be influenced by the drug. The use of sparteine may be said to be indicated in cases of heart-failure, myocarditis, arhythmic and circulatory disturbances. It is not a diuretic, and in cases where such a remedy is needed digitalis or other drugs should be used.

The clinical researches of Dr. H. Voigt, in Austria, confirm the opinions of G. Sée, he also having observed the drug to increase the heart's action, strengthen the pulse, and increase the arterial pressure. Voigt, however, states that the cardiac rhythm is not always improved or regulated by the drug, but the largest doses given by this author did not exceed from $\frac{1}{64}$ to $\frac{1}{16}$ of a grain.

The views of Dr. Maslowski have already been quoted in the THERAPEUTIC GAZETTE, and differ but little with those observed by other practitioners, with the exception that he ascribed to the drug an action upon the secretion of urine which is denied by others.

Masius is the only writer on the subject who does not speak favorably of the drug.‖ He says that he has found its action to be very uncertain, although he acknowledges its beneficial properties in cardiac affections.

The drug is undoubtedly one of great value, and the experiences of practitioners up to the present time ought to be sufficient to stimulate physicians in this country to further researches with this interesting remedy.

CARDIAC STIMULANTS.

IT is quite remarkable that in spite of the number of drugs which are brought forward on account of their alleged action upon the heart as substitutes for digitalis, that that medicine should so persistently maintain its pre-eminence above all other remedies in the treatment of cardiac failure. It is only a short time since strophanthus seemed as though it would at least take a neck-and-neck position in the race with the old foxglove, or as it was originally called, folksglove (folks being the old English for fairies). In the Philadelphia Hospital, so far as we can learn on inquiry, strophanthus has in the majority of cases failed to do the good that was

* G. Sée.

† Acad. de Méd. de Belgique, March 26, 1887.

‡ "Etude sur l'Action physiologique et les Applications thérapeutic de la Spartéine," *Nouveaux Remèdes*, December 24, 1887.

§ "Sulfate de Spartéine," *Union Médicale*, November 29, 1887.

‖ Trans. Royal Medical Society of Vienna.

expected of it. Although sometimes it has seemed of service, in our own practice we have found it a useful remedy, not as a substitute for digitalis, but as an alternative, to be employed in long cases of disease in which it was desired from time to time to vary the remedy. At the meeting of the Medical Society of Berlin, on the 16th of January, M. Fürbringer gave an account of the treatment of one hundred and twenty hospital cases with strophanthus. In only thirty of these cases did the medicine seem to act favorably. The only indication for its employment which M. Fürbringer was enabled to draw out of his experience was that the more recent is the lesion of the heart the greater are the chances of obtaining a good result from the strophanthus. He also stated that he was never able to overcome dyspnœa with the remedy even when it causes dropsy to disappear, and further said that in renal dropsy the remedy was of no value whatever. In three cases he has observed sudden death during the usage of strophanthus without being able at the autopsy to find any sufficient reason for the unexpected cardiac arrest. In each of these cases the patient had been taking strophanthus in a great quantity and for a long time. In commenting upon these remarks of M. Fürbringer, it is allowable to state that in our experience the best results have been obtained from the use of strophanthus in certain cases of advanced cardiac failure from chronic contracted kidney, which is in opposition, of course, to the conclusions of Fürbringer. The sudden cardiac arrest spoken of in the three cases is, we think, hardly to be attributed to the strophanthus. In very severe chronic heart-disease, when the dyspnœa has been a perpetual orthopnœa, we have ventured to exhibit digitalis steadily for a length of time in enormous doses,—½ drachm or 1 drachm of the tincture three times a day. By such employment we have seen patients enabled to go about their daily avocations, previously unable day or night to leave the chair. In almost all of such cases, however, death has come from sudden collapse whilst the individual was performing his daily functions, or, as in the recent case of a high church dignitary, whilst the man was sitting reading a book. We have never thought that the digitalis under these circumstances was the immediate cause of the cardiac arrest, but rather that it enabled the heart to go on using whatever vital power it had until the last grain was expended, and we would so explain the sudden deaths recorded by Fürbringer.

AGARICINE.

WE desire to call attention to a remedy which has been used in Philadelphia for the last two years with alleged extraordinary success by some of our German physicians in the treatment of colliquative sweats. In phthisis and similar exhaustive diseases belladonna will usually arrest sweating with certainty, but the dryness of the mouth which it produces is always very disagreeable to patients, and in some cases to it is superadded an unrest or nervous excitement, which entirely forbids the further employment of the mydriatic. Sulphuric and gallic acids often fail. The remedy that we especially allude to is agaricus, the powdered *Agaricus alba*, or ordinary European agaric, a peculiar toadstool or fungus which grows upon the European larch. There is prepared an impure alcoholic extract of this fungus, which is sold under the name of *agaricine*, and has been very highly praised both by English and German physicians. (See *Prag. Med. Wochen.*, 1884, vol. ix. p. 305, and *Centralb. Klin. Med.*, 1884, vol. v. p. 89.) The dose of this extract is 1 grain to 1½ grains, although it is affirmed larger quantities can be given without detriment. The effects are said to be immediate, without disagreeable accompaniments or sequels. Will not some of our readers make thorough trial of agaricine and report?

THE FUTURE OF ERYTHROPHLÆINE, THE NEW ANÆSTHETIC.

SINCE the discovery of the anæsthetic properties of cocaine, no drug has more rapidly attracted attention than the new anæsthetic, haya erythrophlæine, described by Lewin. His paper, published almost simultaneously in this country in the GAZETTE, in Berlin, London, and Vienna, at once called forth a series of experiments by a number of different observers, some of whom have confirmed his results, but many seem to be antagonistic to his conclusions. The future of this drug is therefore an undecided one. For where such eminent observers are found on opposite sides of a question, the only explanations that suggest themselves are either, as we mentioned in our last issue in reference to Mr. Tweedy's denial of Lewin's claims, that there was a difference in the samples of the article being experimented with, or that some error of observation was accountable. The most remarkable criticism which Dr. Lewin's article

has called forth was made before the Berlin Medical Society on February 8, 1888, where Liebreich, the discoverer of chloral, denies the vegetable origin of this substance, claimed by Lewin to be the active principle of *Erythrophlæum judiciale*, and attributes the active principle of the preparation used in his experiments to the poison of the venomous serpent, the Naja Hayé (*Wiener Medizinische Blätter*, No. 8, 1888). Further than this, he questions the explanation which Lewin has given as to the action of this substance. He denies that the so-called erythrophlæine is an anæsthetic in the sense in which cocaine is an anæsthetic, and he speaks of it as an inhibitory drug, and compares the effects produced by instillation in the eye to the results which follow section of the sympathetic nerve; in other words, a paretic effect of the fibres of this nerve. He supports this statement by claiming that, while cocaine removes simultaneously the sensibility of the cornea, conjunctiva, and sclerotic, erythrophlæine only dulls the sensibility of the sclerotic coat. Liebreich thus claims that this drug does not produce anæsthesia of the eye in the strict sense of the word, but produces muscular paralysis of the eye, and he finds a similarity between its action and that of antipyrin and aconitine. Schoeler, on the other hand (*Revue Gén. de Clinique et de Thérapeutique*, February 23, 1888), in opposition to Liebreich, attributes the phenomena produced by erythrophlæine to paralysis of the terminations of the trigeminal nerve. He has experimented in this connection on man, and claims that with a drop of a two-tenths per cent. solution placed in the eye, first a sensation of burning with conjunctival hyperæmia is produced, and then the cornea becomes anæsthetic,—a state of affairs which lasts for two hours, and then is accompanied by the subjective perception of color-rings.

Comparing erythrophlæine with cocaine, he is of the opinion that its action is slower but more prolonged; an opinion which also appears to be shared in by Dr. Koller, who introduced cocaine. On the other hand, Von Renas states that he has been able to produce with this drug but the most imperfect and transient anæsthesia.

Dr. Karewski (*Deutsche Med. Wochenschrift*, February 23, 1888) has likewise contributed a series of experiments as regards the action of this drug, which, in the main, would appear to confirm those of Lewin. He has found that the drug works differently on different individuals, and that, as in the case of cocaine, the previous production of anæmia of the part facilitates the production of anæsthesia. In no case, however, did Karewski succeed in producing complete anæsthesia; for even in the most complete action, when its injection was combined with a simultaneous production of anæmia of the part, the sensation of touch still remained, although that of pain was removed. Thus, a needle might be stuck into the anæsthetized part without producing a painful sensation, and yet its presence be readily recognized by the production of sensation. On the nasal mucous membrane half per cent. solutions applied on tampons were capable of producing analgesia after about eighteen minutes' application. Applied to the skin it produced no effect whatever. The disadvantages of its action are, in the first place, the long time which elapses before analgesia becomes complete, the uncertainty with which complete anæsthesia is produced, and the disagreeable symptoms which often accompany its employment. Karewski would therefore restrict the employment of this drug to the removal of excessive granulations. Goldschmidt (*Centralb. für Klinische Med.*, No. 7, 1888) seems to be about the only one who can thoroughly confirm Lewin's statements. He claims that one drop of a one-tenth of one per cent. solution produced in ten or fifteen minutes anæsthesia of the conjunctiva and cornea lasting for three or four hours, or even in some cases for twelve hours, and that the duration of the anæsthesia may be prolonged at will by repeated instillations of the drug. He has found that in the rabbit the cornea may be cut through without any evidences of pain, yet seizing the iris with forceps was evidently painful. Similar results have been obtained by him on man, complete anæsthesia being attained by one or two drops of a one-tenth of one per cent. solution in fifteen minutes, accompanied, however, with slight burning and heat in the eye,—which, however, when the state of anæsthesia is reached, are claimed to disappear. Its use is said to be accompanied by no alteration in the pupil, accommodation, or sense of vision. Goldschmidt finds that the use of this drug is accompanied by dilatation of the blood-vessels, a fact which would tend to render the scope of its employment more restricted than that of cocaine, whose action is accompanied by vascular contraction; yet he would prefer its employment to cocaine where an anæsthetic influence is alone required, since it is free from the action of the latter on the pupil, accommodation, and intraocular pressure.

From these contradictory results naturally no conclusion can yet be drawn as to the exact status of this drug. Time alone may enable us to tone down the extravagant statements of the supporters of this drug or to find explanations of the objections of its antagonists. We have, at some length, given both sides of the question as to the action of this article, and can only hope that subsequent observers will warrant the addition to our pharmacopœia of a drug which must prove so valuable as a new local anæsthetic.

PENGAWAR DJAMBI, OR PAKU-KIDANG.

IN the March number of the THERAPEUTIC GAZETTE we had in the reports on therapeutic progress an article upon this subject, but we wish at present to call anew the attention of our readers to it by the statement that we have long used it in the physiological laboratory of the University of Pennsylvania as a hæmostatic. It was originally brought to us by Dr. Lautenbach, who had learned the value of it while working in the laboratory of Professor Schiff, at Geneva. To the physiological surgeon it is extremely valuable on account of its power of rapidly coagulating blood and forming a plug, which for the time being will stop hemorrhage even from large venous vessels. Thus, in opening up the spinal cord there is usually an excessive outpouring of blood from the torn sinuses, an outpouring which may be at once arrested by stuffing pengawar djambi into the wound. It is free from irritant properties, and we see no reason why it could not be made the bearer of antiseptic substances. Under its influence we believe that any cut surface would rapidly dry, and we trust some of our surgical readers will make a practical test and report the results in our columns.

ERGOTIN INJECTIONS.

IN previous issues we have alluded to the difficulties attendant on the subcutaneous injections of ergotin and the methods proposed by Bumm and Engleman (injections into the nates) for overcoming the irritant effects which are so often consequent on this mode of employment. Schücking, in a contribution to the *Centralblatt für Gynäkologie* for February 25, 1888, states that he has employed injections of ergotin solution in the cervical portion of the uterus,—a method which, when the syringe is absolutely disinfected and the ergotin preparation fresh, is free from danger, is painless, and in certainty of result is far superior to any other method of employment. The point of the needle is inserted for not more than about one-eighth or one-quarter of an inch into the anterior or posterior lip of the os uteri, a situation in which the high degree of development in the lymphatics insures rapid absorption. In no case, the author claims, has any inflammatory reaction followed this method of employment, provided great care be employed in making the injection in avoiding the body of the uterus or of the fibroid tumor for whose treatment it is recommended. Injections into the body of the uterus or into the tumor itself are always to be avoided, even when the tumor is deeply situated in the body of the uterus; even then the needle should only be inserted in the anterior or posterior lip of the mouth of the uterus. When care is, then, taken in proper disinfection of the instrument and in the selection of a pure material, the employment of this remedy is claimed to be perfectly free from risk.

THE PROPER METHOD OF USING SACCHARIN.

A CORRESPONDENT of the *Scientific American* (February 18, 1888) states that he has attempted to employ Fahlberg's saccharin in the place of sugar, but owing to its insolubility he found it at first almost impossible to use it practically in sweetening cranberries, lemon-juice, or similar foods or beverages. Subsequently he found that for general purposes the formula, "of glycerin, 1 pound; saccharin, 1 drachm," heated to a solution, acted excellently well. Two teaspoonfuls was sufficient to sweeten the juice of one lemon, and three teaspoonfuls to render very palatable four ounces of the sourest stewed cranberries. The glycerin mixture resembles very closely in taste and color the best white honey, and dissolves readily in water, milk, tea, coffee, wines and liquors, etc.

ANTIVIVISECTION METHODS.

THERE has appeared in one of the Philadelphia medical journals a most remarkable paper coming from the pen of the president of the American Antivivisection Society as his address delivered at the annual meeting

January 30, 1888. We are rather surprised that a medical journal should print with commendatory notices an article so abusive of many men who lead medical thought in the world, so false and misleading in many of its statements, and so well calculated to advertise its author and to stir up strife against the medical profession. To libel a living man is bad enough, but to libel one dead is worse, and the false statement that Dr. J. J. Woodward was not a vivisector appears to us libellous. One of the most extraordinary circumstances about this thing is that the author of such an article, and the president of a society whose avowed intention is to suppress vivisection, should have the audacity to publish in another medical journal an account of an experimental research on animals made by himself almost within a few months of the time when he stands on a public platform to indulge before a popular audience in such a tirade.

ANTIPYRIN IN CHOREA.

IN the clinic of Dr. H. C. Wood at the Hospital of the University of Pennsylvania both antipyrin and antifebrin have been used in a number of cases of St. Vitus's dance in children, and the results so far have been uniformly good, sometimes remarkable. Thus recently a case was shown to the class in which a week's treatment had produced almost complete quiet, although just previously there had been no decided improvement after three weeks' administration of arsenic. No difference has been detected in the action of antifebrin and antipyrin. In a recent communication to the French Academy, M. Legroux stated that he had had remarkable success with antipyrin in chorea, affirming that he has been able to reduce to a period of from one to three weeks (many of his cases getting well in a week) the duration of a disease which ordinarily lasts from sixty to ninety days. His treatment is as follows: One gramme (fifteen grains) of antipyrin is dissolved in twenty grammes (five drachms) of syrup of bitter orange-peel, and the whole is administered at one dose. Three such doses are given during the twenty-four hours. He considers it perfectly safe to give this dose to a young child, and all of Legroux's patients are now treated in this way.

In Dr. Wood's clinic much smaller doses than those used by Legroux have been used, and we are not at all sure that it is safe to give a young child forty-five grains a day.

Reports on Therapeutic Progress.

THE TREATMENT OF NEURALGIA BY CATAPHORESIS.

DR. ADAMKIEWICZ, Professor of General and Experimental Pathology of the Jagellonian University at Krakow, communicates a series of cases successfully treated by his method of cataphoresis, of which one typical case may serve as an illustration. A merchant, aged 64, had been suffering from most violent neuralgic pains of the right supraorbital nerve. The attacks had commenced three months previously, and in the course of time gradually increased both in frequency and intensity. They succeeded each other for three weeks, with barely any interruption, and entirely deprived the patient of sleep day and night. Even any attempt to speak immediately brought on a severe attack. Owing to the agonizing pain caused by every masticatory movement, the patient finally abstained from solid food. When seen the first time by the professor the attacks followed each other at intervals of two to three minutes; they were most violent, and made the patient writhe and sway, and rendered him, although a man of great determination and self-control, unable to refrain from loud moaning. Pressure on the diseased nerve at its passage through the supraorbital notch was very painful. To this place an electrode, charged with chloroform, was applied and connected with the positive current, which was gradually increased to seven milliampères, and decreased again to naught, after having acted in this power on the sensitive spot, whereby the neuralgic attacks were completely checked. Half an hour afterwards another, but considerably slighter, attack followed, which was immediately arrested by a renewed cataphoresis. The patient, on the following day, reported that he had enjoyed a refreshing sleep during the night, that he felt comfortable, and was able to speak without danger of inducing neuralgic pain; he had only five slight attacks of short duration during twenty-four hours. He was cataphorized only once daily during the following five days, after which, as the spontaneous attacks had entirely ceased, the cataphoretic treatment was discontinued. The attacks not having returned during the subsequent week, and only slight pains having been brought on by the mastication of solid food, the patient was several times again cataphorized. After longer periods without treatment, the attacks returned. The man-

ner of application, and the results of the cataphoresis, was the same in the other cases, from the reports of which it is evident that cataphoresis succeeds in curing, or at least in suppressing for a longer period, neuralgia, and that this effect takes place the sooner the more recent the complaint. Of three cases which had obstinately resisted every other kind of treatment, two were cured by cataphoresis; one, of four weeks' duration, after three applications, and the other, which had commenced only four days previously, by one single use. This treatment proved likewise beneficial in chronic neuralgia, and produced, at least temporarily, great relief; the duration of the single attacks was shortened, and the sensibility of the diseased nerves lessened. The deep situation of the affected nerves, and pathological conditions which give rise to neuralgic pains and are not amenable to treatment, are unfavorable for the action of cataphoresis, besides the long duration of the complaint. The situation of the nerves is not a matter of indifference in the cataphoretic treatment, because the depth into which the current passes is dependent on its intensity, which cannot safely increase beyond a certain degree. Therefore sciatica in stout persons will be less benefited by cataphoresis than the neuralgias of the intercostal, occipital, and especially of the fifth nerve, and of this particularly of the supra- and infra-orbital branches, which also Professor Hirt, of Breslau, has successfully treated by this method. Nevertheless, cataphoresis should also be tried in sciatica.—*Lon. Med. Rec.*, January 20, 1888.

LANOLIN AND BORACIC ACID IN CERTAIN DISEASES OF THE SKIN IN CHILDREN.

Dr. Russell Sturgis (*Boston Med. and Surg. Journ.*, February 25, 1888) reports that he has employed lanolin with success in cases of facial eczema, eczema of the head, eczema squamosum, eczema rubrum, and intertrigo, the mild form of seborrhœa often seen on the temples and about the chin, and, lastly, chronic urticaria. In the eczema where there is on the face a more or less raw surface from scratching, with papules, vesicles, and pustules, and on the head a similar condition of things existing under a dry, dirty-yellow crust, he first directs that the head and face shall be cleaned of the crust in the usual way. Should there be copious discharge from the exposed surface he prescribes boracic acid in fine powder, to be dusted on for the first forty-eight hours, night and morning, and not to be washed off.

The first effect of the acid is generally to increase considerably the serous flow, but, after twenty-four hours, to diminish it. After forty-eight hours the boracic acid, as much as may be left mixed with the dried serum, shall be washed off with warm water. The surface is now seen to be less inflamed, and not discharging as much as when the crusts were first washed away. Then the boracic acid shall be applied night and morning, washing off each time the acid applied the time before. As soon as the skin is in condition to bear an ointment, one of boracic acid, ʒii, to lanolin, ʒi, is employed, by which the acid is kept in contact with the skin better than if used in powder.

Boracic acid alone or with lanolin acts in a very satisfactory manner in alleviating the intense itching of eczema: much less restraint being necessary to prevent the child from damaging the skin by scratching. In cases where the eczematous patch is so situated that it is not rubbed by the bedclothing, as on the vertex and anterior aspect of the cheeks, Dr. Sturgis prefers to use no covering, because there is not so much danger of tearing away the crusts that may form and become adherent to such covering. Agnine, being rather stiff, constitutes a covering itself which is not easily removed. When the patch is on the neck or about the ears, absorbent cotton, kept in place by a bandage or cap, may be used. Unruptured vesicles and pustules near the margin of a patch should be slit, reducing them to the same condition as the unprotected skin in the centre of the patch.

In eczema of the face, after most of the redness and evidence of acute inflammation have subsided, the induration which is left is treated by daily inunction, morning and night, with pure agnine. The directions are to rub on enough to give the skin a brown color; then rub this in till the surface scarcely feels greasy, and until the brown color is replaced by light yellow, or has disappeared. If the rubbing is as vigorous as directed, the induration soon disappears. It is doubtful whether the lanolin is the beneficial factor, or whether it is the massage with lanolin as the emollient.

In cases of eczema squamosum in which there is considerable induration, with scaly surface, accompanied by cracks or not, the scales should first be cleaned off with plenty

of hard rubbing with sweet oil, and washing with Castile soap. Then, night and morning, he directs brisk, hard rubbing with an ointment of five to fifteen grains of salicylic acid to the ounce of lanolin, according to the degree of induration. This treatment will restore the skin to its normal condition in less time, and with less discomfort to the child, than the more painful application of oil of cade and the stronger alkalies. The advantage is, that when lanolin is used no stronger irritant than fifteen grains of salicylic acid to the ounce is required to get the effect. This is due to the fact that probably an irritant is brought into closer contact with the deeper layers of the skin by the means of lanolin, than if it were applied more to the surface, without lanolin being used. In this connection, it may be mentioned that in infants and young children, with their delicate skins, induration and scaling probably yield to much milder remedies than in the tough, old cases in adults, in which strong irritants are called for.

In cases similar in appearance to eczema squamosum, but which are really seborrhœa, where there is no induration, and little or no change in color of the surface, an ointment of five grains of salicylic acid to the ounce of lanolin, used night and morning, is enough to remove the scales. After the disappearance of the scales, lanolin alone may be used once a week or oftener to keep the skin in good condition, as such scaly patches are prone to return, particularly in winter.

In chronic urticaria we have in lanolin a reliable application to alleviate the itching, which is usually so difficult to control.

As regards boracic acid, the author states that he has had occasion to employ this substance some three years ago in a case of recurring eczema behind the ears which had resisted other modes of treatment. The case did so nicely that he used it whenever he had occasion to treat eczema rubrum and intertrigo in children. He directs that the pure finely-powdered acid shall be dusted over the parts every morning and when about the genitals each time the napkins are changed. Each night and morning the acid previously applied should be removed before more is put on. Since employing this treatment he had no occasion to use zinc and starch powder or zinc ointment, which he used before as his routine treatment. When now their use is indicated, he gets much better results from pure boracic acid or boracic acid with lanolin. He states that boracic acid is of value where there is much serous oozing, boracic acid and lanolin where there is less, lanolin alone where there is moderate scaling and induration and urticaria, salicylic acid and lanolin where there is considerable scaling and induration.

THE TREATMENT OF ERYSIPELAS BY NITRATE OF SILVER COMPARED WITH THAT BY WATER-DRESSING.

Nitrate of silver, as a means of fixing the erysipelatous process and of transforming a specific inflammation into a non-specific or simple one, was first recommended about sixty years ago. Some practitioners employed the nitrate of silver as a pencil, by which they used to draw a more or less broad and black line around the affected region, and believed that the process actually ceased to spread further. It would be hardly too hasty to affirm that at present an overwhelming majority of practitioners would, without much hesitation, join Professors Nothnagel and Rossbach in their designating the procedure as an "entirely illusory one (*ganz illusorisch*)."

The plan of painting the whole affected surface with a more or less strong solution of nitrate of silver cannot be so hastily dismissed. Professor Hebra, of Vienna, saw nothing but a discoloration of the skin when weaker solutions of the salt were used, and only an increase of local inflammation when any stronger ones had been applied. Professor E. Kuester, of Berlin (*Eulenburg's Real Encyclopædie*, vol v. p. 100), found even strong solutions "as a rule unreliable, though serviceable now and then" (the same being stated by him also in regard to tincture of iodine, ice, turpentine, etc.). On the contrary, Professor Volkmann, of Halle, obtained most beneficial results from this method, which of all means in his hands "most often arrested any further spreading of erysipelas, and rapidly or even immediately lowered fever." The same conclusions were arrived at by several Russian military surgeons (of the Caucasian army) who had tried Volkmann's plan during the last Russian-Turkish war.

In view of these somewhat contradictory statements, Professor Alexëi G. Polotebnoff, the chief of the St. Petersburg dermatological clinic, suggested (in 1879) to Dr. M. J. Stükovenkoff (then his house-physician, and now professor in Kïev) to undertake two parallel

series of experiments with the object of studying the influence of the silver treatment on the course of erysipelas comparatively with that of an expectant method, consisting mainly in the use of cold-water dressing.

Stükovenkoff's observations, as analyzed by Dr. V. Idelson (*London Medical Recorder*, January 20, 1888; *Vratchebnyia Vedomostī*, Nos. 458 and 459, 1881), lasted about two years (1879–81), and concerned 66 male patients, aged from 13 to 58, who were affected with sporadic erysipelas (64 with an "idiopathic" variety, and 2 with a traumatic one) of the face or scalp, or of both (62), or of the lower limbs (4). Forty-two of the whole number were subjected to the silver painting; they required, on the whole, 142 days of treatment, or, in the average, 3.3 days each, with limits at 1 day (6 cases) and 11 days (1 case). In 83 per cent. of the cases the local process was arrested, and fever disappeared within four days after the beginning of the treatment, the disease yielding the more swiftly the earlier the paintings were resorted to. The remaining 24 cases were treated with compresses. They required 204 days of treatment, or 8.5 days each, with limits at 3 days (1 case) and 18 days (1), in a majority of the cases (17) the affection being subdued between the fourth and ninth day of the treatment. The general corollary drawn by Dr. Stükovenkoff from the facts above was to the effect that "in a majority of cases the silver paintings shortened the duration of the erysipelatous process more than twice as much as the expectant method could do." As to various complications, the nitrate proved powerless to prevent either suppuration of palpebral (2 cases) or orbital (1 case) cellular tissue, or croupous pneumonia (1 case with fatal issue). Of the expectant cases one also ended in death, the cause being renal hemorrhage and general prostration, while another case was complicated with palpebral suppurative phlegmon.

Such was, in general outlines, the outcome of Stükovenkoff's researches. Professor Polotebnoff, however, being conscious of some hiatuses, resolved to systematically continue the same observations by himself. As we gather from a recent excellent, very suggestive paper of his (*Polotebnoff's Sbornik Rabot*, vols. i. and ii., 1886–87, p. 150), the new parallel experiments, concerning 60 successive male cases, embraced the period between February, 1881, and July, 1883, and were conducted on the same essential lines as the former series. Thirty men were treated with cold-water dressing, and the remaining thirty with a solution made mostly of ½, and sometimes of 1 drachm of the silver salt to 1 ounce of distilled water. The solution was applied every six, or ten, or twelve hours during the first day, and once or twice daily afterwards, up to the defervescence. The mode of application was invariably this (in both of the series). Immediately after admission the patient's affected parts and adjacent healthy skin (at about two or three fingers' breadth around them) were most carefully, several successive times, washed over with lukewarm water and common gray soap, sponged over with spirit and gently wiped over dry with a soft, clean towel. Then the silver solution was slowly and cautiously rubbed into the entire cleansed and dried region for five, or ten, or even more minutes, by means of a short lint tuft or a piece of hygroscopic cotton-wool.

Thirty-one patients (15 treated after the abortive method and 16 after the expectant one) had erysipelas of the face alone, 18 (9 and 9) of the face and scalp, 9 (5 and 4) ditto, with a portion of the body, and 2 (1 and 1) of lower limbs. Five (2 and 3) were admitted on the first day of the disease, 18 (7 and 11) on the second, 20 (11 and 9) on the third, 7 (4 and 3) on the fourth, 3 (2 and 1) on the fifth, 5 (2 and 3) on the sixth, and 2 (of the abortive category) on the seventh and eleventh. The results of these masterly, elaborate, and academically careful observations of the distinguished Russian dermatologist may be briefly condensed as follows:

1. Nitrate of silver cannot be classified among those remedies to which a power of "fixing" the erysipelatous process is attributed. True, there are now and then met sporadic instances where the process ceases to spread after the paintings under consideration; but a similar occurrence may be as often (or rather as seldom) noted, also, under an entirely symptomatic treatment.

2. The nitrate does not possess any marked antipyretic action, the course of the fever remaining pretty much the same under either of the methods.

3. The nitrate does not prevent the development of the renal lesions. [Albuminuria was present in 35 (58.3 per cent.) patients,—namely, in 17 (56.3 per cent.) treated with the paintings, and in 18 (60 per cent.) treated with water-dressing.]

4. Under the abortive treatment albuminuria lasts pretty much as long as in the expectative cases. [Its average duration was 3

days in the former category and 3.3 in the latter. In 9 of 35 cases albuminuria was intermittent; in 15 it lasted even after the temperature had fallen down to 37.4° and 36.3° C.; while in 5 cases albumen appeared in the urine not earlier than after the temperature had decreased from 40° C. to the standard level. The author adds that his further observations during the last two years—when the urine of all erysipelatous patients was systematically and frequently examined, also during the apyretic period of the disease—have established beyond any doubt this very interesting fact, that "in erysipelas albuminuria is absent only in quite exceptional cases."]

5. As to cerebral and pulmonary complications, they occurred by far less frequently under the silver treatment than under the expectant one. [Delirium and loss of consciousness were observed in 2 patients of the former class, and in 5 of the latter; exactly the same respective figures are given for pneumonia.] But it remains as yet an open question to which cause this difference may be ascribed,—to a difference in treatment, or to some quite accidental circumstances.

6. Mortality remains the same under either of the methods. [Of each group, one case ended fatally. In the case treated with the nitrate, death ensued seemingly in consequence of an exacerbation of a late phthisical process under the influence of erysipelas; while the patient treated with compresses succumbed under acute parenchymatous nephritis.]

7. Nevertheless, nitrate of silver undoubtedly shortens, to a certain degree, the duration of the disease. Its beneficial action may be explained by the admission that the painting promotes a more rapid regressive evolution of local inflammation, for when, in a patient with a both-sided facial erysipelas, one side of the face is painted with the silver solution, while the other is covered with a simple water-dressing, redness, pain, tenderness, and swelling disappear on the former side earlier than on the latter.

8. The said shortening, however, is but very trifling. [In the abortive category the average duration of the treatment was 4.6 days and that of the disease 7.5. The respective figures for the expectant group were 5.9 and 8.3 days, the difference in favor of the silver treatment being, therefore, not greater than 1.3 days in regard to the duration of treatment and .8 in regard to that of the disease.] In other words, the result does not in any way compensate for the troublesomeness of the painting procedure in a technical respect.

Hence Professor Polotebnoff again fell back on a hydrotherapeutic treatment of erysipelas. He adds that lately he has with advantage substituted for cold compresses the warm ones (at 30° or 35° R.), which are likewise preferred by the patients. As to fats and ointments, the author strictly avoids their use in erysipelas, since they interfere with the maintenance of the skin in a cleanly state, and their thorough removal on renewing the dressing causes discomfort to the patient, while "compresses relieve the feelings of tension, heat, and pain by far more effectively than any smearing with ointments, and at the same time allow of the skin being kept quite clean, and of the easy observation of any change in the affected region."

For upwards of six years the author has been also employing in his clinic prolonged (from one to four hours) tepid baths (35° to 32° C.) in certain cases of erysipelas (as well as in gangrenous and phagedænic ulcers, etc.). The indications for their use are a rise of the temperature above 40° C., weak and accelerated pulse (120 per minute), and—what he regards as the most essential indication—such complications as a considerable albuminuria, intense and extensive pulmonary catarrh (attacking a large region of both of the lungs) or pneumonia, and cerebral symptoms. According to his experience, the baths of this kind, administered twice or thrice daily, "represent an excellent symptomatic means, since they lower the temperature and strengthen the cardiac action, which effects have a paramount therapeutic value, especially in the presence of pulmonary or renal inflammations, and of cerebral phenomena." In 60 of his cases he resorted to the baths in 6,—in 1 treated by the paintings and in 5 expectant cases.

It is worth while to mention, in conclusion, that in 40 of 60 cases the morbid process started from the nose, and that in all of these the nasal membrane was found to be inflamed and often presenting very deep erosions covered with scurfs. Similar lesions were detected in 8 other cases where the patients were unable to state from which spot exactly the disease had started. Of the remaining 12 patients, only in 1 (in whom erysipelas had commenced from the neck) could a cutaneous lesion (ulcer) be discovered. All searchings for any initial lesion of the skin in the other 11 cases proved fruitless, the starting-point being a cheek (2 cases), upper eyelid (2),

auricle (2), zygomatic region (1), temporal one (1), upper lip (1), and lower limbs (2). The said lesions of the nasal cavity in facial erysipelas were as often ("in an overwhelming majority of the cases") met with also by Professor Stükovenkoff.

ANTIFEBRIN AS A HYPNOTIC.

In the *Medical Record* (February 18, 1888) DR. J. KELL reports a case of acute alcoholism accompanied by low muttering, delirium, and subsultus tendinum, with a pulse of 140, and marked dicrotism, with a temperature of 103, in which antifebrin was given in doses of 10 grains. After the second dose had been given the patient passed into a sleep, at first interrupted by involuntary muscular contractions. This, however, soon passed away, and under the influence of a third dose sleep became profound. The temperature was reduced to 99½,° the pulse 112, with an absence of the dicrotic character and much stronger. After a period of five hours' rest he awoke, but almost immediately was given a fourth dose of 8 grains, which prolonged the rest four hours. In conjunction with supporting measures the use of antifebrin was continued to convalescence, which was prompt and satisfactory.

THE DIAGNOSIS AND ELECTRICAL TREATMENT OF EARLY EXTRA-UTERINE GESTATION.

At a meeting of the British Gynæcological Society, held February 8 and 22, 1888, DR. JAMES AVELING read this paper (*Brit. Med. Journ.*, March 10, 1888).

He said that to the Americans was due the credit of having established the efficacy of the electrical treatment of extra-uterine gestation. Although electricity had been employed as a fœticide more than thirty years ago, it received little attention until Dr. J. G. Allen brought a case before the Philadelphia Obstetrical Society in 1872. Numerous cases had since then published by American gynæcologists. More recently it had been employed in this country; but the method of using it had been erroneous. In one case, three needles of improper metal were inserted, and used with the positive pole of a thirty-cell constant-current battery. The result was that the mother died. Experience proved that a moderate faradic current was sufficient to kill the fœtus in early gestation, and the employment of such strong means was quite unnecessary. The brilliant results of the operation for dealing with these cases when death from laceration and hemorrhage was imminent had blinded some gynæcologists to the necessity of adopting a plan of treatment which would prevent these fatal ruptures. Objections had been raised on the ground that a diagnosis in tubal pregnancy was never called for before the rupture of the tube; that there were no symptoms before rupture was established; that to apply the electric current to every kind of pelvic lump, under the suspicion that it was an extra-uterine pregnancy, would be a most haphazard and dangerous proceeding; that the destruction and death of the child was of no consequence at all; the organ which could not be destroyed by the electric current, but which would go on growing and would go on bleeding when it was torn, was the placenta; finally, that supposing the fœtus had passed through the stage of tubal rupture and remained alive, one had no right to murder the child. All these objections could be easily answered. Any practitioner who met with a case presenting the history and subjective symptoms of ectopic gestation should endeavor to clear up his doubts by making a physical exploration of the pelvic organs. The history of a case of misplaced gestation was of great importance, and should never be overlooked. As a rule, erratic pregnancy was found to occur most frequently during a prolonged sterile period following a first confinement. The patient generally believed herself to be pregnant, and that there was something unusual about her condition. Pain of a peculiar paroxysmal and agonizing character was a most reliable guide. The ordinary supervening signs of conception would be noticed. Metrorrhagia also was an important symptom. If in addition to the foregoing symptoms a rounded, elastic, tender tumor was discovered behind or to one side of the uterus, rapidly increasing in size and vascularity, there was no other pelvic tumor with which it could be confounded. The condition and situation of the uterus also gave valuable diagnostic information. As regards treatment, laparotomy after rupture was a necessary and life-saving operation, but the object of all treatment should be to prevent rupture, and thus render the more dangerous operation unnecessary. No one would wait until an aneurismal sac had burst before using means to arrest its progress. Electricity might be employed with every chance of success during the first four months. No doubt the earlier it was had recourse to the

better, a satisfactory diagnosis having been arrived at. There were two theories as to the way in which electricity caused the death of the fœtus : one that it was brought about by electrolysis, the other that death was due to nervous shock. He believed that death was due to the tetanic contractions of the fœtal mass, resulting from the repeatedly-broken current of an induction machine. To be effective the current should be as strong as the patient could bear ; not turned on all at once, but gradually increased to that point. It should be continued for at least ten minutes, and repeated every day until the effects upon the tumor became evident. These effects, which confirmed the accuracy of the diagnosis, were cessation of pulsation, diminution of resistance, and reduction in the size of the tumor ; and besides these, retrograde changes in the breasts, and retiring of the cervix uteri from the pubes. In a case he had treated a short time since, he had used Gaiffe's induction machine, and employed only half its power. The negative electrode was applied to the most prominent part of the cyst through the vagina (it might be found convenient to pass this through the rectum in some cases). The positive electrode was placed on the abdominal wall opposite the tumor. No pain or inconvenience was felt after the applications. They were only four in number, for on the fifth day, when about to repeat the faradization, such marked change in the cyst was apparent that he was convinced gestation had been arrested. This proved to be true, and the patient was now in health, and no trace of the tumor could be felt.

Mr. Lawson Tait said that in the single case of tubal pregnancy he had met with before the date of rupture the symptoms had been obscure pelvic pain of several months' standing, in fact, the usual symptoms of salpingitis. He saw her again three days subsequently, and her symptoms had become most acute ; she was bent double, and could hardly walk. Finding the whole floor of the pelvis was fixed in one mass, she was admitted into the hospital, and the next morning he opened the abdomen and found a ruptured tubal pregnancy. He denied it was possible to have diagnosed such a case beforehand, for the woman had not even missed a period. No diagnosis could be depended upon before the date of rupture ; one might guess, but it was impossible to affirm. Speaking of the growth of the placenta, he had found instances of a macerated fœtus not more than ten or twelve weeks old, while the placenta was the size of a four months' pregnancy. Dr. Berry Hart and Mr. Knowsley Thornton had confirmed his observations. He could not accept the twenty cases alluded to by Dr. Aveling, which "disappeared after treatment," as cases of tubal pregnancy, and disbelieve his own observations, which were supported also by others. Speaking of cases allowed to go on towards term, he believed that all the children and most of the mothers might be saved by proper surgical intervention at the opportune moment.

Dr. Inglis Parsons said there was no evidence to show that the placenta would continue to grow when the child had been killed by electricity. The force that could produce the death of the fœtus was not likely to leave the placenta untouched. No subsequent trouble had resulted in the twelve cases mentioned by Dr. Garrigues.

Dr. Rutherford said that before the third month they could not be sure they had to deal with a case of extra-uterine gestation. He thought the faradic current distinctly dangerous, as the muscular coat of the tube was greatly hypertrophied, and therefore the risk of rupture would be increased by the strong contraction. If the current were employed at the fourth or fifth month, when the sounds of the fœtal heart could be heard, and if after treatment they ceased, then they would be entitled to claim that the treatment had been so far successful, but Dr. Aveling had spoken of a case at two months, when of course no such proof was available.

Dr. Imlach said that opinions had advanced much since the year 1872, when he had seen a case at full time allowed to perish for want of surgical interference. He maintained that the same thing happened in a tubal pregnancy as did inside the uterus when the fœtus died. As soon as the child died or was killed, the tube endeavored to discharge its contents, and, as it could not possibly pass into the uterus, the tube was ruptured. If they killed the fœtus they were doing the best they could to bring about the very thing they wished to avoid. Let it go on to full term, or until rupture, and then operate at once. Laparotomy could always be performed almost without danger, so that there was really no excuse for killing the fœtus. He considered it to be an absurd piece of meddlesome gynæcology.

Dr. Japp Sinclair said that in three cases, with the details of which he was familiar, there were absolutely no symptoms before

rupture; and in two of the cases even after rupture the symptoms were most misleading. He had met with many cases which simulated tubal pregnancy.

Dr. Barnes maintained that the diagnosis of tubal gestation might be made with reasonable certainty even at the seventh or eighth week. The ordinary signs of pregnancy being present, there were two signs that called for special examination. These were, first, pain more or less acute in the pelvic region, of a spasmodic character; secondly, more or less hemorrhagic discharge from the uterus and vagina. There were signs of abortion,—it might be of uterine gestation; but they called for local exploration. The uterus would be found not in the normal median position, but pushed across the pelvic brim to one side; on the opposite would be found an extra-uterine swelling, of an ovoid shape. The size of the uterus itself might or might not, most probably did not, equal that of the estimated stage of gestation. If all these conditions had developed in a short period in a subject hitherto free from symptoms of pelvic distress, the case for tubal gestation rose to more than suspicion. If the symptoms were not urgent enough to call for active intervention, an opportunity occurred for making comparative observations. If in a week or two the extra-uterine tumor had increased considerably, and shreds of decidual membrane had been cast with the uterine hemorrhage, the case for tubal gestation was all but complete. The process of abortion had fairly set in. In the case of uterine abortion we might safely wait, aiding nature according to her indications. But nature's course in the case of tubal gestation was to burst the sac, and that might be fatal. At this point rupture might be averted by puncturing the sac, thus relieving tension by drawing off the liquor amnii and any blood that might have been effused into it. This almost certainly involved the death of the fœtus, and this treatment, with rest, was often enough. But it was also the opportunity for galvanism. He had no personal experience of this proceeding, but with the present state of knowledge should prefer simply to tap the sac, and proceed to ulterior measures according to circumstances. Dr. Barnes summed up the question of treatment in the following propositions: 1. The treatment to be adopted must be governed by the nature of the case, by the urgency of the symptoms, and especially by the stage of development of the gestation. 2. In the early stage, before bursting of the sac, electricity to kill the fœtus might be applicable; but simple puncture of the sac was better. 3. When signs of rupture of the sac, with manifest signs of hemorrhagic effusion, shock, and collapse, had set in, no time should be lost before opening the abdomen and tying the pedicle, and, if possible, removing the pregnant tube. If the primary effects of rupture had been tided over, and a fair degree of tolerance had been gained, it might be enough to treat the case as one of simple retro-uterine hæmatocele, by puncturing more or less freely the sac behind the uterus, and leaving in a drainage-tube. This plan had been adopted with success. 4. When the stage of danger of cataclysmic rupture had passed, laparotomy should be performed as soon as the condition was recognized, not waiting for the maturity of the fœtus. 5. Lastly, when in the presence of urgent or threatening symptoms a doubt arose as to the course to pursue, the decision should be, as a rule, in favor of opening the abdomen and going straight to the seat of mischief. It mattered little to the patient, if her life were imperilled by the bursting of an ectopic gestation sac, or by some other condition causing rapid hemorrhage into the abdomen or pelvis. The same remedy was indicated in different diseases. Precise diagnosis was not necessary to justify laparotomy.

Dr. Routh said the uterine *souffle* could be heard as early as the sixth week by means of the vaginoscope. A similar sound was heard in certain cases of fibroid tumor; but it was easy to distinguish the two. A fibroid giving rise to a *souffle* must be much larger than an extra-uterine pregnancy of three months. He approved of puncture of the sac, provided the aspirator was used. In any case, he thought electrolysis was unnecessary and most dangerous. It was quite sufficient if the electrodes were placed one within the uterus and the other on the abdomen at the point nearest to the fœtal sac. He did not believe in the growth of the placenta after the death of the child. Speaking of ventral pregnancy, if seen at a late period, and viable, no doubt he should operate. But if not viable, he would not think it right to wait until it became so, and allow the mother to be sacrificed for the sake of the child. He should think it his duty to destroy the fœtus, whether by electricity or puncture, up to three months; after that, remove it by abdominal section.

The President thought the facts before them were not sufficient to warrant a clear

expression of opinion. He would not recommend any one for whom he had a regard, and who was suffering from an ectopic gestation, to be electrified, but would prefer opening the abdomen and removing the mass at once. The cases in which dead fœtuses had been left for long periods of time inside the body without giving rise to symptoms were very exceptional, and the electrical treatment might be the means of causing the very mischief they were endeavoring to avoid.

Dr. Heywood Smith remarked that it would be helpful to divide the consideration of treatment into three stages: (1) the pre-rupture stage; (2) the stage of immediate post-rupture; and (3) that which might be called paulo-post-rupture. Inasmuch as hitherto the second stage (that of primary rupture) had usually proved fatal, and would in severe cases continue to do so unless the abdomen were opened and the seat of lesion removed, it stood to reason that whenever the first stage was diagnosed the pregnant tube should be removed, so that the woman should not be exposed to the risk of rupture.

Mr. Lawson Tait exhibited a large collection of specimens, illustrating every variety of ectopic gestation, from the museums of St. Thomas's, Guy's, Queen's College, and the Royal College of Surgeons. In the event of meeting a case of ectopic pregnancy, before rupture had taken place, he would prefer to remove it, for several reasons. First of all, he would not have been called in if the patient were not ill, and the urgency of the symptoms would justify the treatment. For one case they could diagnose, fifty would escape recognition. Further, if electrolysis were successful, a useless organ was left with the risk of subsequent pyosalpinx. The growth of the placenta after the death of the fœtus was evidenced by his specimens. In the later stages of the ventral pregnancy he would leave the fœtus as long as he could, so as to give it the best chance of living, the more so as the mother's life was not thereby imperilled. His opinions regarding the removal of the placenta had been gradually changing, because experience had taught him that its removal was easier than he had once thought.

NITROGLYCERIN IN EPILEPSY.

Dr. William Osler (*Jour. of Mental and Nervous Dis.*, January, 1888) states that he has employed nitroglycerin in nineteen cases of epilepsy, administering it in solution of one per cent. or in pilules of one one-hundredth of a grain, beginning with 2 three times a day. As individuals appear to differ in their susceptibility to this drug, each case must be tested before the proper dosage can be determined. A point of considerable importance is that no good follows unless the physiological effect is obtained. Flushing of the face, fulness of the head, and a pleasant glow over the body indicate that the proper dose has been reached. In some cases these symptoms are produced by one or two pills, but in others not until six or eight have been taken. In two instances headache and dizziness, which were the only unpleasant symptoms complained of, were so severe that the medicine had to be stopped. Dr. Osler saw nineteen cases in which nitroglycerin was tested for periods ranging from six weeks to six months. In thirteen of these cases there were severe epileptic seizures, six were instances of *petit-mal* with occasional convulsions. Briefly stated, in nine cases there was improvement, as shown in the reduction of the frequency of the attacks. Of these, six were cases of major epilepsy and three instances of *petit-mal*. The benefit was usually manifested within a week or ten days. Thus, Case XVI., a man, aged 27, had had fits for ten years, and when seen, April 5, had as many as two or three a day. He had taken potassium bromide largely, and at one time with great benefit. Antifebrin was given in gr. viii, two or three times a day, but seemed to be without any influence. On June 1 nitroglycerin was given, ♏v of the one per cent. solution, three times a day. Within a week the attacks were greatly lessened, and in the second week after beginning he had only two attacks. He continued to take it all through the summer, getting up to ♏viii doses t. i. d. He does not think that anything he has ever taken reduced the fits so much. On November 11 he stated that he had stopped it for a month; the attacks have recurred less frequently, and he had been able to be at work.

In some of the cases in which the betterment was most striking at first, the remedy seemed to lose its influence, and after a month or two had to be abandoned.

Dr. Osler does not feel satisfied that in any of the nine cases the improvement has been more than temporary. His experience, on the whole, is thus not very encouraging, but it may be worth while when the bromides have failed or are beginning to lose efficacy to test the use and the employment of nitroglycerin.

Dr. Osler also states that he has used the nitrite of sodium in a few cases with but indifferent success.

SIMPLE ASEPSIS.

For some time past antiseptics have been undergoing considerable revolutions. Gradually the methods employed in obtaining asepsis are becoming more simple. Listerism, with its bulky apparatus and complicated methods of procedure is almost a thing of the past. The birth of true antiseptics of course dates from Lister, but his methods have been so modified as to be scarcely recognizable. The simpler the means are by which certain asepsis can be obtained the more desirable they are. The spray, protective, and even catgut are now discarded, and the latest is that the use of all prepared bandages and gauzes is being abandoned.

Many cases, indeed, have been reported where the use of catgut has been followed by anything but good results. Lister's old method was to preserve the catgut in carbolic oil. It is now claimed by several authorities that the catgut undergoes decomposition in carbolic oil. Whether this be the case or not would be rather hazardous to say, but it is certain that its preservation in this medium does not insure its disinfection. Not very long ago a case of excision was published where the use of carbolized catgut sutures was followed by a sarcomatous struma.

Dr. Koch has clearly shown that all oily or alcoholic solutions of antiseptics are practically valueless, as these mediums lessen or even annul their antiseptic properties.

The preparation of catgut which has found greatest favor of late is that which has been treated with sublimate. It is undeniable that an immersion lasting from six to twelve hours in a one per cent. solution of corrosive sublimate will result in absolute and complete sterilization. Whether, however, it is advisable to preserve catgut in such a solution is an open question. German authorities claim that catgut preserved in juniperus solution is as safe as that preserved in sublimate, and undoubtedly the catgut treated with chromic acid, according to the English method, is a reliable and safe suture as far as sterilization is concerned.

PROFESSOR THEODOR KOCHER, of Bern, in a long and interesting article on antisepsis, which appeared in the *Correspondenz-Blatt für Schweizer Aerzte*, January, 1888, speaks of a long series of experiments which were made with catgut, and the result of which prove that it is in many cases an infectious article, and one which cannot be thoroughly disinfected even by our most reliable antiseptics.

The cases show that in the great majority the use of catgut sutures was attended by fever, suppuration, and swelling, and in many cases also by the formation of abscesses, and even the subcutaneous formation of gas and fetid secretions from the wound.

Thirty-one cases are cited, twenty-four of which were attended by inflammation, swelling, and putrid discharges, the rest healed secondarily, with the exception of two minor cases, which healed by first intention.

In twenty-two of the cases, says Professor Kocher, there was unmistakable infection of the wound. Since then the use of catgut has been completely abandoned and fine silk used in its place. Usually a single fine number of silk thread was used, and if this was too weak, two or three thicknesses were used. The results which attended this new treatment were highly satisfactory. Sixty-two cases are quoted, forty of which healed by first intention, the remainder all quickly. In cases where previous suppuration existed it was speedily conquered; in one case the formation of an abscess was reported after the patient had gone home.

It would be scarcely just to condemn catgut sutures and ligatures even after the perusal of the above instances. Many operators are this day using only catgut with excellent results, but what they are using is thoroughly disinfected, whereas there is a great deal of catgut on the market which is undeniably infectious. The disagreeable symptoms which, however, so often follow the use of catgut have never been observed to follow the use of silk.

Both the origin and preparation of catgut show that it is a highly-suspicious material. An infectious thread introduced into a wound will do far greater harm than any germs from the air which might inoculate the wound. With catgut the infection results from contact, and may be compared with that which is produced by the use of infectious sponges, dirty hands or instruments. Indeed, it properly should be regarded as an implantation infection.

This form of infection is without doubt the most dangerous. It lasts the longest, and escapes detection for the first few days, as usually the wound heals up superficially while the germs are doing their work subcutaneously.

It is, therefore, of greatest importance to see that all ligatures, sutures, etc., in short,

anything which is placed deeply in the wound, is thoroughly and absolutely sterilized.

As every practitioner would hesitate to perform any operation with soiled instruments or sponges the sterility of which he is not certain, so ought also every practitioner to abandon the use of catgut, which at its best is always open to serious suspicion.

With silk it is quite a different thing. Here the raw material is not already impregnated with infectious germs, as is the case with catgut. The method of preparation allows an easy absorption of any antiseptic solution.

It is advisable, says Professor Kocher, in all cases to use as few ligatures as possible. Only those should be tied which persistently bleed in spite of torsion; always twist as many as possible. A very good instrument for this purpose is a modification of the Billroth artery-forceps. The additions are fine teeth, which will retain a firm hold in the toughest tissue.

Next important to the sutures and ligatures used are the sponges. Here every precaution is necessary to prevent infection by contact. It is not advisable to preserve them in a sublimate solution, as they undergo considerable decomposition in it. A precipitate is formed which does harm to the wound and injures the action of the antiseptic.

The most simple method for their preservation is the following: the sponges should be thoroughly washed with hot water and soap, and repeatedly boiled in water for some time; afterwards placed in a clear five per cent. solution of carbolic acid for preservation. Before operating they should be emptied into a glass or porcelain bowl, and then passed through a clothes-wringer and deposited in another bowl, which must also have been previously disinfected.

All instruments which are smooth and polished may be easily rendered antiseptic by being well wiped off and then laid in a solution of carbolic acid. The more complicated instruments should be boiled in water for about two hours.

Dr. Fürbringer has recently written a good deal concerning the disinfection of the hands. He says they should be well washed in hot water and soap and scrubbed with a brush, then bathed in alcohol, and finally in a one per cent. solution of sublimate. Forster says that perfect asepsis can be insured by simply scrubbing the hands with soap and water and then disinfection in a one per cent. solution of sublimate. Kümmel finally advised that after the washing they should be bathed in a five per cent. solution of carbolic acid and then in a fifty per cent. solution of chloruretted water. The researches of Professor Kocher show that Forster's method fills every requirement. Only lately, says Kocher, was he operating upon a case of acute osteomyelitis, during which his hand became soiled with the pus, etc.; after cleansing his hands according to Forster's simple method, he immediately excised a large struma. In the latter case healing was complete by first intention in forty-eight hours. Far more important than the bathing of the hands in alcohol, as Fürbringer prescribes, is the cleansing of the nails and keeping them cut close. Forster also forbids the use of a towel after the immersion of the hands in the sublimate solution, and Kocher indorses this.

Dr. Tavel examined the deposit under the nails of Dr. Kocher and his assistants after their hands had been cleansed according to Fürbringer's method, and the first trial resulted in the production of quite a colony of bacteriæ in gelatin. After thorough washing with soap and water and the use of a brush, and the immediate disinfection of the hands in sublimate solution, the little deposit which he gathered from under the nails proved to be perfectly sterile, although it was under observation for an entire month.

If the impossibility of infection by means of sutures, ligatures, hands, and instruments has been secured, the danger of infection from the air is but slight and of little importance. This may be entirely avoided by disinfecting the wound, which may be done by taking a bunch of lint, soaking it in a one per cent. solution of sublimate, and then pressing it into every crevice of the wound.

According to Professor Kocher, as well as numerous other practitioners, a continuous suture seems to be attended with the best results. Drains should never be used unless absolutely necessary, and when they are, only glass drains should be used. The great advantage glass drains have over all others is,—first, because they can be completely sterilized with comparatively little trouble; second, because they do not imbibe or absorb any germs; and, third, because they can be easily cleaned. Of course rubber drains are very handy and easily used, yet they cannot be depended upon like a glass drain. The drains should be kept in a one per cent. sublimate solution, and rendered sterile by long boiling in water.

Concerning bandages: If we were to attempt any description of the various bandages and dressings which are on the market we

should not know where to stop. The most peculiar and novel substances are sometimes used, and always largely advertised,—the German "Forest Cotton" (Waldwolle) and wood-cotton, moss-pulp and torf; then iodoform and bismuth gauzes.

The use of iodoform is frequently carried to extremes. Many surgeons of to-day think it of absolute necessity to dust over and around every wound a thick layer of the drug or to cover it up with iodoformized gauze. Gauze or lint which is sterilized at the moment of application is almost equally efficacious in many cases as iodoform gauze.

In cases, however, where suppuration already exists iodoform is an invaluable dressing. Iodol is an excellent substitute for iodoform in almost all cases.

As to the merits of these various dressings we will not speak; suffice to say that good, plain bandages and lint is all any surgeon could desire.

In conclusion, the principal point in antiseptics is sterilization of the wound. This must be absolute and complete if good results are looked for. The main points by which this may be obtained are very simple, and can be summed up as follows:

1. The ceiling, floor, and walls of the operating-room should be thoroughly washed with soap and water and dried. Then three tables, carefully cleansed in the same way, should be brought in. One of these is to serve as the operating-table, one to hold the instruments, and one to hold the various other utensils.

2. A half-dozen thoroughly-cleansed and boiled bowls and basins should be on hand to hold the antiseptic solutions, also some bottles for the same purpose; also a large quantity of hot water, which must have been boiling two hours previously.

3. Have soap and brushes ready to wash and scrub the skin, hairs, and hands of all who take part in the operation; also large sheets of impermeable material to cover the patient, the instruments, and the bandages.

4. For the preparation of the antiseptic solutions a quantity of concentrated solution of carbolic acid in a measuring-glass and a sufficient quantity of sublimate should be ready.

5. Besides the instruments, there should be a glass containing glass drains in one per cent. solution of sublimate, and another vessel of the same solution containing fine silk thread wound on glass spools; the sponges in a five per cent. carbolic acid solution; and, finally, a large quantity of unprepared bandage, lint, and gauze.

THE ACTION OF NAPHTHALINE ON THE VISUAL ORGANS.

According to some recent experiments, the ingestion of naphthaline produces marked lesions of the retina, the optic nerve, the vitreous humor, and the crystalline lens in guinea-pigs. On the retina its administration is followed by small patches of a brilliant white, which rapidly increase in size and coalesce, principally in the neighborhood of the optic nerve. In large doses the retina is rapidly destroyed. In the vitreous humor a number of opalescent opacities appear, not unlike cholesterin. The most curious effects are those observable in the crystalline lens; the appearance of the white spots is preceded by shaded lines, followed by the formation of opacities either on the posterior surface or round the edge immediately beneath the capsule. In a few days the lens will have become quite opaque. The histological examination shows that these patches are due to an exudation of round cells beneath the capsule and between the peripheral fibres of the lens.—*Med. Press*, January 18, 1888.

THE EFFECT OF ERGOT UPON INVOLUTION OF THE UTERUS.

At a meeting of the Obstetrical Society of London, held February 1, Dr. Herman and Dr. C. O. Fowler (*Lancet*, February 11, 1888) brought forward a paper on the effect of ergot on involution of the uterus, in which it was stated that the administration of a tonic mixture containing ergot during the lying-in period had often been recommended. This recommendation was based upon a general knowledge of the action of such drugs and of the process of involution. No observations had been made, so far as the authors were aware, as to the actual effect of this treatment upon the progress of involution. They had sought to ascertain its effect by measuring the height of the uterus above the pubes on successive days of the lying-in, in two sets of patients,—one set (fifty-eight in number) treated with an ergot mixture for a fortnight after labor, the other set (sixty-eight in number) given a single dose of ergot after labor and no more. They found that in the cases treated by the continuous administration of ergot the uterus diminished in size more rapidly than in those in which one dose only was given. They compared the two sets of cases as to the duration of the lochial discharge, but on this they did not find that the

ergot treatment produced any appreciable effect. A table accompanied the paper.

Dr. Boxall contrasted two series of cases, each referring to one hundred patients. Every alternate patient admitted to hospital was given a mixture three times a day, containing ext. ergotæ amm., 15 minims for a dose, during the first three days of lying-in. To avoid fallacy in the comparison, the two series of observations were carried on simultaneously. The ergot mixture was given in the first series. In the second its routine administration was omitted; but in the series are included thirty-one patients for whom, on account of hemorrhage, severe after-pains, etc., ergot was subsequently prescribed. The results are presented in a tabular form. By contrasting the two series of cases, Dr. Boxall concluded: 1. That though the routine administration of ergot during the first three days of the puerperium exercises no appreciable effect on the date at which the lochia cease (in this respect confirming the observations of the author of the paper), the practice of giving ergot mixture during the three days following delivery tends to prevent the formation of clots and to hasten their expulsion, and to diminish the frequency, intensity, and duration of the pains. 2. That if omitted at first, but given after, the ergot mixture tends to promote the expulsion of clots and to relieve after-pains.

Dr. Boxall considered that (*a*) the routine practice (which he had followed) of administering a douche at from 110° to 115° F., not only immediately after labor, but also twice a day during the puerperium until the lochia ceased (a powerful stimulant to the uterus), (*b*) the ergot which was given in every case immediately after labor, and (*c*) the ergot mixture which was prescribed subsequently in thirty-one of the cases included under the second series, all tend to lessen the difference which he had shown to exist between the two, and that in consequence the beneficial effect of the ergot mixture is even greater than that shown by the figures given in the tables.

Dr. Dakin had made observations as to the effect of systematic administration of ergot for some days during the puerperium on cases in the General Lying-in Hospital while he was house-physician. They did not support the view which the authors took, but showed that the average day when the fundus had sunk to the brim was 9.12 when ergot was given once only; 10.3 when ergot was given daily for three days. There were, however, other fallacies than those named by the authors; for, in addition to the condition of the bladder, rectum, thickness of abdominal wall, and weight of the uterus in the pelvis, there was the condition of the uterine axis, whether flexed or inclined, antero-posteriorly or laterally. He had found in a number of consecutive cases taken at random that one-sixth of the uteri were in the axis of the body. These ought not to be compared with cases of anteflexion and anteversion usual to the uterus during the puerperium, as there might be a difference of three inches or more on this account alone. In one of Dr. Dakin's cases the fundus was found one day in the left hypochondriac region nine inches from the pubes, whereas in the next it was to the right of the middle line, and only measured five inches and a half. He agreed with Dr. Boxall that the lochia were a better criterion of the rate of involution, and in this his own figures did not agree with the author's, for with one dose of ergot the average was 9.8, with three days of ergot, 11.6. With reference to the retention of clots and the occurrence of after-pains, he found that out of ninety-two cases where ergot was given for three days, fifty-one (55.4 per cent.) had after-pains, and twenty-two (23.9 per cent.) passed clots. Out of one hundred and three cases where only one dose of ergot was given, sixty-four (62.136 per cent. had after-pains, and fourteen (13.592 per cent.) passed clots, so that the ergot cases had fewer after-pains but passed more clots. The unergotized cases, like Dr. Boxall's, passed clots up to the tenth day, whereas the ergotized ones passed no clots after the sixth day. It seemed that the continuous use of ergot, by keeping up a chronic state of contraction, instead of allowing normal alternate contraction and relaxation, would tend to favor retention of clots and to prevent the normal process of involution. This was to a great extent borne out by his figures.

Dr. Swayne wished to know if chloroform was used during delivery, and in how many of the cases. In order to ascertain accurately the effect of ergot given after delivery, in his opinion it was necessary to remove all disturbing influences, such as the administration of anæsthetics during labor.

Dr. Herman, in reply, said that the cases observed by Dr. Dakin (which seemed to support an opposite conclusion to that arrived at by Dr. Fowler and himself) were only given ergot for three days, while their cases took it for a fortnight, and he did not therefore

regard the two sets of cases as strictly comparable. The sources of error from the mode of measurement pointed out by Dr. Dakin had been present to the minds of Dr. Fowler and himself, but there was no other mode which was not attended with sources of fallacy. Such errors as arose from anteversion and anteflexion of the uterus were equally distributed among the two sets of cases, and so did not vitiate the comparison. Dr. Fowler and himself had paid particular attention to the occurrence of lateral displacement, and had found that it depended in the majority of cases on the position in which the patient had been lying. They had not referred to it in this paper, as it did not seem to have any important bearing on the subject. In reply to the question of Dr. Swayne, chloroform had been given in six of the cases,—viz., three of each series.

ANTIPYRIN IN ASTHMA.

Dr. John L. Dodge reports in the *New York Med. Journal* for February 18, 1888, the following case of asthma cured by the administration of antipyrin: "A. E., aged 60, a laborer, was admitted into the Louisville City Hospital November 16, 1887. He gave a history of having suffered from asthma for three years, and of having attacks almost every night during this period. The heart was normal. There was no bronchitis and but very little emphysema. From November 16 to December 17 he had from one to two attacks every night, and occasionally one during the daytime. During this time lobelia, grindelia robusta, iodide of potassium, and, lastly, pyridine, were tried. For a while these remedies seemed to diminish the severity of the paroxysms, but did not affect their frequency. Towards the last, however, they seemed to lose their effects, and from December 12 to December 17 the attacks became more frequent and more severe. On December 17 Dr. Dodge ordered antipyrin in 15-grain doses, at 6 P.M., 12 P.M., and 12 M. The next morning the patient reported having passed a comparatively comfortable night, having had only one paroxysm, and that a light one. The dose was repeated on the 18th, with the same happy effect. On December 19 Dr. Dodge again ordered antipyrin, 5 grains every three hours during the day, and 15 grains at 9 P.M. and 3 A.M. This was kept up until December 23, when the medicine was withdrawn, as the paroxysms had ceased entirely. The next day there was some slight gastric disturbance, and arsenic, nux vomica, and pepsin were ordered. This mixture was given for two days and its use was then discontinued, as he complained of nothing, and pronounced himself well.

"On January 6, 1888, he was dismissed at his own request, there having so far been no return of his asthma."

The relief obtained in this case was so remarkable, quick, and complete that it would perhaps seem to open up a new field for antipyrin.

THE TREATMENT OF ULCERS BY PHOSPHORIC ACID.

Dr. Grossich uses a ten per cent. solution of pure phosphoric acid in distilled water. The ulcer is covered with a bit of lint dipped in this solution, and the dressing renewed three or four times a day. The patient for the first few minutes feels a slight burning sensation, but this soon passes. Within twenty-four or thirty-six hours the ulcer cleans and looks better. Inflammation or eczema of the surrounding parts disappears, and all pruritus ceases. The ulcer cicatrizes more rapidly than under any other treatment, and the cicatrix is firm and healthy. The treatment is very successful in scrofulous ulcers. In tubercular glands of the neck, if there is no fluctuation, he injects a Pravaz syringeful of the solution into the gland; the gland is reduced in size within twenty-four hours. If, in spite of the injection, the gland suppurates, the suppuration is limited to a small part only of the glandular tissue. Kolischer treated tubercular affections of the joints with injections of phosphate of lime with great success. Dr. Grossich has also had good results with this treatment, but now prefers the ten per cent. solution of phosphoric acid. He gives two cases as examples. The first was that of a boy, aged 12. The knee was the part affected. The symptoms had lasted a year, and for three months he had been confined to bed. The leg was bent on the thigh at a right angle. The knee was spherical, very swollen and elastic, almost fluctuating to touch. Movement gave rise to acute pain. Eight syringefuls of the solution were injected as deeply as possible into the joint at sixteen points, about two centimetres apart. Lint wetted with the same solution was then wrapped round the joint, and changed every eight hours. The pain for the first hour after the operation was considerable, but gradually disappeared. After the fifth day the swelling

began to disappear, and after the eighth some passive movement was possible. After the fifteenth passive movements were free, and on the twentieth day complete extension of the limb was obtained almost without pain. On the thirtieth day passive movements were normal; the swelling had disappeared by half. The second case was that of a boy, aged 15, the wrist being the part affected. The hand, from the radio-carpal to the metacarpo-phalangeal articulation, was enormously swollen, and there was a sinus through which a probe could be passed from the back to the front of the hand. On pressure, pus and caseous matters exuded; the surface of the bones was rough and exposed. The patient was made to hold his hand for two hours twice a day in the phosphoric acid solution, and rags wetted with the same solution were applied the rest of the time. After forty-eight days of treatment, the swelling was reduced by half, the sinus closed, and movements both in the wrist and in the metacarpo-phalangeal articulations were free and painless. Dr. Grossich quotes several other cases in which this treatment was successful, among which are a tuberculous abscess of eight months' duration, situated on the last three ribs, and a severe case of eczema marginatum which had lasted more than a year. This last case had been in the hospital under varied treatment for two months. After twenty-four hours' application of the phosphoric acid solution, the pruritus, which had been very distressing, disappeared, and after fourteen days there was very evident improvement, many sound, healthy-looking patches of skin appearing.—*Lon. Med. Rec.*, December 15, 1887.

THE TREATMENT OF URÆMIA BY BENZOATE OF SODIUM.

Benzoate of sodium has recently been recommended by Dr. A. S. Partzevsky, of Moscow, for the treatment of uræmia. In ten cases treated by him, three of which were suffering from interstitial and seven from parenchymatous nephritis, the drug was given hourly, in doses which amounted during the day to one or two drachms. It was administered in various ways,—in solution, wafers, or capsules, or enemata where internal administration was impossible. Nine patients recovered and one died. Dr. Partzevsky believes that benzoate of sodium shortens the attacks, the convulsive attacks gradually ceasing and the patient falling into a deep sleep. The patients usually awake in a state of full consciousness. Albuminuria generally disappears altogether. If given when the symptoms—viz., headache, dilatation of the pupil of the eye, and sickness—first appear, the attack may often be entirely warded off.—*Prov. Med. Journ.*, March 1, 1888.

THE THERAPEUTICS OF THE URIC ACID DIATHESIS.

In the *Brit. Med. Journ.*, January, 1888, pp. 16 and 67, Dr. Burney Yeo considers the appropriate treatment of that constitutional state, and the various maladies associated therewith, which depend on the tendency to the accumulation of uric acid, in excess, in the human organism. The various views which prevail as to the mode of origin of this excess are briefly summarized, and as a basis for therapeutic discussion, the author considers that it may be accepted that the "uric acid diathesis" is associated with imperfect nutritive metabolism and imperfect excretion of the results of retrograde metamorphosis, especially of albuminous substances. After enumerating the principal morbid conditions dependent on or associated with the uric acid diathesis, Dr. Yeo mentions the principal remedies proposed for affections connected with this diathesis. In treatment, the question of diet and mode of life is of even more importance than medicine. In these matters each person requires a separate study, especially with regard to digestive peculiarities; our object should be to construct a diet which shall be readily digested, and which does not tend to excite acidity and undue fermentation in the alimentary tract. As regards the use of alcoholic drinks, women, as a rule, should avoid them. Malt liquors and bad wines are most prejudicial in this diathesis; the widely-accepted idea that a cheap claret is harmless is a grave fallacy, for these cheap wines are more harmful than a good quality champagne or burgundy. No remedy is more valuable and important than the regular consumption of a considerable quantity of pure and, preferably, hot water. With regard to medicinal agents, Dr. Yeo considers colchicum one of the most valuable, when given judiciously, for most of the morbid manifestations of this diathesis. Salicylates he does not consider of much value, unless the uric acid and rheumatic diathesis are combined.

Garrod advocates the use of the benzoates

of sodium and lithium, but some observers doubt their efficacy. In the same way Garrod has found great benefit from guaiacum in chronic articular gout, but little attention has been paid to his recommendation. The value of iodide of potassium is as yet imperfectly understood; it acts most beneficially in chronic arthritic affections, but it has its most important applications in the less easily recognized degenerative changes dependent on this diathesis. If long continued in fairly large doses, this drug has a remarkable influence in retarding the progress of those degenerative vascular changes dependent on the gouty constitution. The use of the various alkalies in these cases is almost universally accepted, but Dr. Yeo does not see why the lithium compounds are superior to those of potassium or sodium, and considers the diuretic effect of bicarbonate of potassium, especially when given with hot water, to be more reliable than any other drug. Closely connected with the use of alkalies is the employment of the various mineral waters. Such a variety of these have been recommended, and their compositions are so varied, that the author thinks the benefit derived from their use depends a great deal on the change of diet and regular living enforced on patients when taking the waters. Purgatives are useful only in so far as they are the means of insuring the discharge of excrementitious matters from the system; it is a mistake to drain away the serum of the blood by drastic purgatives after we know the bowels are completely relieved. One of the most complete and satisfactory purgatives in these cases is a pill at night containing half a grain of extract of colchicum and two grains of watery extract of aloes, followed in the morning by a large teaspoonful of Carlsbad salts in a tumblerful of hot water. Diuretics and diaphoretics are useful as stimulants of excretion, and a very hot bran-bath is a most useful agent in many cases. Opium should be avoided as much as possible, because of its influence in checking excretions generally.—*Lond. Med. Rec.*, February 20, 1888.

DIGITALIS IN THE TREATMENT OF PNEUMONIA.

The use of digitalis in croupous pneumonia has often been recommended, usually in small doses, as a heart-tonic, but by some as a sort of specific. It has been claimed that the exhibition of very large doses of digitalis tends to abbreviate the course of the disease very remarkably, as well as to reduce the mortality. In most of the statistical tables prepared by the advocates of this method the defervescence is seen to occur from the sixth or seventh to the tenth day, which is the time at which the disease subsides ordinarily, so that not much would seem to be proved as to the virtue of the drug regarded as a specific.

In a recent graduation thesis, Dr. Ilie N. Antoniu, of Bucharest, reports one hundred and forty-two cases of pneumonia treated by Professor Petrescu with large doses of digitalis, and compares the results obtained with the average statistics of pneumonia. The digitalis was given in very large doses,—from one to two drachms of the leaves in infusion in the twenty-four hours. In no cases, however, were any evil effects from these large doses observed, and the fatal secondary heart-depression, so feared by some authorities, did not occur. From a careful comparison of the cases reported it does not appear that the disease was materially shortened, the defervescence occurring in most of the cases at the usual time. The mortality, however, was much below the average, the percentage being only a little over one, while in all the other tables, collected from various sources, the mortality is given as from three to twenty-four and a half per cent.

The author's conclusions, which are somewhat extravagant, are that it is possible to abort pneumonia by large doses of digitalis, especially if the treatment be begun early in the course of the disease. He maintains, also, that from sixty to one hundred and twenty grains of digitalis leaves may be given in infusion in the twenty-four hours without any fears of heart-failure resulting from overstimulation and subsequent fatigue.—*Medical Record*, March 10, 1888.

RESECTION OF LEFT LOBE OF LIVER.

There is hardly an organ in the body that has escaped the surgeon's knife. The liver has now been attacked, for Dr. Langenbuch (*Berl. Klin. Woch.*, 1888, No. 3) records a case in which he successfully resected the greater part of its left lobe, which had been extensively deformed by tight lacing, and had caused great inconvenience and trouble to the patient. The woman, about 30 years of age, was, in November, 1886, under treatment for erysipelas at the Lazarus Hospital, and when about to be discharged convalescent, she begged that she might be relieved

of a painful abdominal tumor that rendered life unbearable, and caused pain both on standing and on lying down. On examination, a tumor of the size of the fist was detected in the epigastrium, dense, elastic, not fluctuating, moving with respiration, and its dulness continuous with that of the liver. The diagnosis lay between hydatid tumor and deformity from tight-lacing (*Schnürleber*), although the latter condition usually involves the right lobe. An exploratory incision proved that the case was of this kind, but involving the left lobe, and probably for that reason producing the painful symptoms. For the enlarged and indurated mass of liver substance in this situation overlies sensitive parts and organs, which it would compress against the convexity of the spine whenever the dorsal decubitus was assumed. Dr. Langenbuch decided that it would be advisable to remove the source of so much distress, especially as the portion of the lobe forming the tumor was practically cut off from the rest of the organ by a broad but ligamentous pedicle, and therefore it was functionally of no service. Accordingly, the pedicle was transfixed by ligatures and the lobe excised. The same evening symptoms of severe internal hemorrhage appeared, and, on reopening the wound, the abdominal cavity was found to be filled with blood; this was sponged out, the bleeding vessels secured, and no further trouble arose from that source. The wound healed, but recovery was somewhat retarded by the development of ascites, which necessitated tapping on two occasions. It could not be determined how far the ascites was due to the cardiac debility and hydræmia resulting from the previous prolonged attack of erysipelas and the profuse hemorrhage, or how far it might have depended on the diminution of the hepatic circuit. There was œdema elsewhere, so the former hypothesis had some support. At any rate it was not permanent, and the patient left in February quite well. The portion of liver removed weighed three hundred and seventy grammes (about twelve ounces), and Dr. Langenbuch says that the case shows the feasibility of removing the lobe of a tight-laced liver when this gives rise to serious discomfort. He explains the involvement of the left lobe in his case to the following circumstances. Up to the date of her marriage, eight years ago, the patient had worn a corset, which she had discarded on becoming pregnant, and had not reassumed. She believes that the liver, displaced downwards and forwards by the corset, now became subjected to pressure from the abdominal bandage which the patient had substituted for the corset; so that, as a matter of fact, the precise deformity which caused the discomfort resulted not from tight-lacing, but from its being omitted. This paradox would, we fear, add to the melancholy conclusion that once the evil habit is adopted it must be kept up if serious consequences are to be avoided.—*Lancet*, February 4, 1888.

BENZOATE OF SODIUM IN THROAT AFFECTIONS.

In the *St. Louis Courier of Medicine* for February, 1888, Dr. L. Boisliniere states that for the last two years he has been using benzoate of sodium in the treatment of various throat-troubles with very satisfactory results. He has employed it in acute follicular tonsillitis, acute erythema or œdema of the fauces, and in diphtheritic affections. Fifty-one cases of acute follicular tonsillitis were treated with the following formula:

℞ Benzoate of sodium, ʒi–ʒiv;
Glycerin,
Elixir of Calisaya bark, aa ʒi. M.
Sig.—One teaspoonful every one or two hours.

No local application was used. The author states that in the analysis of the last seventy-five cases treated he found that the use of benzoate of sodium led to the relief of the disease in twelve to thirty-six hours; forty-one cases reporting well in twelve hours, thirty-one in twenty-four, and three in thirty-six hours, giving, therefore, an average of twenty hours, the duration of each case. This drug likewise appeared to control the febrile elements in the disease, and may be given with impunity even to children, and is free from disagreeable effects. By acute erythema or œdematous sore throat the author refers to that affection described as ordinary sore throat, caused by exposure to cold and wet, a trouble in which there is a redness, involving the tonsils, anterior and posterior pillars of the fauces, uvula, and pharynx, accompanied by œdema of the dependent parts, pain, and deglutition, slight fever, and general malaise. In these cases benzoate of sodium, combined frequently with some mild astringent, appeared to abort the trouble and produce rapid relief. During epidemics of throat diphtheria many of the exudative throat affections assume a diphtheroid appearance; thus in acute tonsillitis the discrete, inflamed

follicles coalesce, and the exudation becomes inspissated and somewhat organized and membranous. This is with difficulty detached from the tonsils, and when forcibly removed leaves bleeding points. It very closely resembles diphtheria, and in many cases it is impossible to make a positive differential diagnosis, although the membrane is usually much whiter than in diphtheria. Benzoate of sodium, according to the author, usually cures such cases in two or three days, and thus assists in the diagnosis. In some cases, however, the membrane has not this white, flaky appearance, but is dark, often black in parts, yellowish, thick, and very tenacious. Four of six cases the author states were treated by the following prescription:

℞ Corrosive sublimate, gr. ss;
Benzoate of sodium, ʒss–ʒi;
Distilled glycerin,
Elixir of Calisaya bark, aa ʒii. M.
Sig.—One teaspoonful every one or two hours.

In each of these cases the membrane is said to have disappeared in from three to six days. Taking into consideration the fact that these cases were cured so rapidly, the author believes them to have been cases of acute tonsillitis modified by an existing epidemic of diphtheria. In true diphtheria, however, the author claims that benzoate of sodium will soften the membrane, control the fever, and materially shorten the duration of the disease.

THE USE OF SALICYLATE OF MAGNESIUM IN THE TREATMENT OF TYPHOID FEVER.

This salt is easily prepared by dissolving salicylic acid in distilled water and saturating the boiling solution with carbonate of magnesium, when crystals of the salt may be obtained in needles, readily soluble in water and alcohol, and both colorless and odorless. Dr. Huchard gives it in doses of from forty to eighty grains daily, and it is not contraindicated by diarrhœa, since it is but slightly laxative even in large doses. It appears to act as an antithermic and as an intestinal antiseptic.—*Lond. Med. Rec.*, February 20, 1888.

SOUR MILK IN SUMMER DIARRHŒA.

According to the Berlin correspondent of *Med. Press*, February 8, 1888, the house-surgeon of the Prison Zweibrücken, Dr. Osthoff, had in two annual reports spoken very favorably of the employment of sour, curdled milk in summer diarrhœa, in adults as well as in children. Such teaching may seem startling to the English mind, with its prejudice against using milk having about it any suspicion of sourness, and especially as an article of food for infants. It should be borne in mind, however, that England is perhaps the only country in the world in which such a foolish prejudice exists, and in which sour milk is not considered at least as wholesome as milk that is sweet. But this by the way. Dr. Osthoff endeavors to explain the beneficial action of sour milk in the following way. He believes that the bacilli of sour milk destroy and overcome by their rapidity of growth the other micro-organisms that are the cause of the diarrhœa, and that they thus bring the process to a stand-still. In addition to its value as a dietetic agent in summer diarrhœa, it proved exceedingly useful in all chronic abdominal affections associated with dyspepsia, in chronic intestinal and hepatic diseases with diarrhœa or constipation, in jaundice, and as an article of diet in typhoid, pneumonia, and erysipelas. In tuberculosis of the intestines, however, it increased the diarrhœa. It forms a valuable means of support to Oertel's treatment in cardiac cases, and cases of emphysema, in small quantities as a substitute for coffee, wine, beer, and water, as a thirst-quenching drink, as well as a food containing both muscle- and fat-forming material in one and the same form. At the instance of the Bavarian ministry, Professor von Voit worked out an official report on this sour-milk therapeutic, and from this some interesting details may be extracted. Sour milk very much resembles fresh milk as a food (four per cent. albumen, three per cent. fat, four per cent. sugar). The use of it is to be recommended as an addition to the needful amount of hydrocarbons. Moreover, especially in summer, it forms a refreshing drink, and may be ordered with advantage in dyspepsia. The action of sour milk is very varied; sometimes it causes constipation and sometimes diarrhœa. For this reason he recommends that in infantile diarrhœa it shall be used with caution. In general he recognizes the value of sour milk as an article of diet. A writer in the *Deutsche Medizinal Zeitung*, commenting on the above, draws attention to the similarity of sour milk and kefir, and let us add the imitation koumiss, now so familiar. Both are used in phthisis. Koumiss at one stage (when fresh) is known to relax the bowels, while at another it constipates. It is the same with kefir, and doubtless it will be

the same with sour milk ; as it gets older it becomes more constipating. We think Dr. Osthoff has done well in drawing attention to a neglected and very useful article of food.

THE TREATMENT OF ACUTE RHEUMATISM.

At the meeting of the Medical Society of London, held February 13, 1888, Dr. Donald Hood (*Lancet*, February 18, 1888) read a paper on the treatment of acute rheumatism, with special reference to the use of the salicylates, based upon the reports of more than two thousand cases. Of these, eight hundred and fifty were from the records of Guy's Hospital before the introduction of salicylates ; the remainder were all treated with salicylates from the time of admission into hospital, five hundred and fifteen of them being treated at St. Bartholomew's Hospital and six hundred and thirty-five at Guy's. The cases chosen were all typical acute sthenic rheumatism, occurring in patients of both sexes under thirty-five years of age. Two marked results of administration of salicylates were a loss of joint-pain and a fall in the temperature, but relapses were more common than under the older methods of treatment. The salicylates appeared to have no effect whatever in either reducing, preventing, or limiting the intensity of cardiac lesions. The formidable complication of hyperpyrexia was discussed and cases referred to illustrating the characteristic symptoms ; it was as common among patients treated with salicylates as among those treated on general principles. It might occur even where the drug had been given regularly in full doses. For treatment, it was recommended to stop administration of the drug, to apply cold locally, and to give stimulants. His recent inquiries confirmed the opinion he expressed in 1881, that patients taking salicylates, though quickly losing their pain, were often left enfeebled, and remained in hospital longer than those who did not have the remedy. The mortality between the two sets of cases was much the same. For purposes of classification and treatment he divided acute rhematism into three large groups,—that of the child, the adult, and the aged. In children, who had often severe cardiac lesion without much joint-pain or pyrexia, there was little indication for rigid specific treatment, whether by alkalies or salicylates. It was in adults that the administration of salicylates would be found of most good. In the third group, cases occurring among people between thirty-five and fifty were rare, and often presented anomalous symptoms, some verging on gout, others truly rheumatic, and others, again, with nervous systems damaged by alcohol, from whom danger was to be feared from delirium and hyperpyrexia. In these anodynes were more useful. In conclusion, Dr. Hood believed that in cases of ordinary acute sthenic rheumatism salicylates might be given with advantage, and the advantage was greater and more permanent where they were exhibited in combination with alkalies ; but when the attack was complicated with the severer forms of pulmonary or cardiac inflammation, under which circumstances there was usually a coincident mitigation or even absence of joint-pain, he did not think there was the same indication for using the drug.

Dr. Samuel West said that in his experience hyperpyrexia was rare, and he thought the high percentage of cardiac affection in recent statistics was to a great extent due to increased care in diagnosis. Salicylates were not indicated in children who presented cardiac complications without joint-affection.

Dr. Whipham had found that when alkalies were given with salicylates relapses were rare. In several instances he had traced toxic effects to impure samples of the drug ; these symptoms were dispelled by brandy.

AMYLENE HYDRATE.

At the meeting of the Suffolk District Medical Society, held January 11, 1888, Dr. Francis H. Williams (*Journ. of the American Med. Assoc.*, February 25, 1888) exhibited the new drug, amylene hydrate, and reported one or two cases in which he had employed it. In one of these, a uterine case, where the patient had slept very poorly for several nights and suffered from some pain, he had administered 40 minims of the drug, sleep being produced in fifteen minutes and lasting nearly all the night. In this case $\frac{1}{8}$ of a grain of morphine repeated several times had already failed to give the required sleep. In one or two cases a remark was made that the patient experienced a pleasant sensation for an hour, as though drunk, and seemed silly. As a rule, however, unpleasant after-effects have not been noticeable, and Dr. Williams believes that this drug is likely to be a valuable substitute for chloral. Dr. A. L. Mason also reported that he had employed amylene hydrate in several cases of marked insomnia. There

were two cases of rheumatic fever with heart complications in which four hours' sleep was obtained. In one case of severe measles four nights of uninterrupted sleep followed the administration of drachm doses of amylene hydrate, and in one case of a restless typhoid patient, in which urethan, chloral, bromides, opium, had failed, drachm doses produced a good night's sleep. A case of acute tonsillitis, sleepless for four nights, and another patient with dyspnœa, slept well after ½ a drachm. A case of abortion obtained good sleep for five nights.

Another patient who had sleepless nights after urethral caruncles were removed, and a uterine case, in which $\frac{1}{6}$ of a grain of morphine, repeated, was of no avail, had a good night's sleep after 40 minims. And the same dose answered the purpose in a case of chronic nephritis with insomnia. A patient with cardiac insomnia, who had been treated with everything else, has had from five to seven hours' sleep after this drug. Its effect appears better than that of paraldehyde or urethan. It seems to be free from the disagreeable after-effects of chloral or opium. The sleep usually comes within twenty minutes after it is given. No ill effects were observed. There was mild intoxication in a few instances.

This substance, amylene hydrate, which we have already a number of times referred to, has a peculiar odor something like ether, and the taste is camphor-like, with an after-taste of peppermint. It is a clear, limpid liquid, and is fairly soluble in water, eight parts of water dissolving one part of the drug. It is quite soluble in alcohol. The dose is from ½ drachm to 1 drachm. It does not act so strongly as chloral, but, on the other hand, is free from some of the dangers of chloral. It does not repress the heart nor respiratory centres as chloral does, and for that reason is a safer drug to use.

THE TREATMENT OF DIABETES MELLITUS BY NITROGLYCERIN.

At a recent meeting of the Medico-Chirurgical Society of Montreal, Dr. R. A. Kennedy (*Canada Med. Record*, January, 1888) read a paper on a case of diabetes mellitus treated by nitroglycerin. The case was that of a woman, aged 28, with good family history, in whom sugar was detected in the urine in October, 1886, accompanied by the usual symptoms of tolerably severe diabetes mellitus. There was intense thirst, great bodily weakness, slight dimness of vision, and pains in the legs. She was placed upon as strict a diabetic diet as possible, the desire for sweetening being obviated by the use of saccharin. The largest amount of sugar in one day was on October 17, 1886, when it amounted to 8.75 ounces. The total amount of sugar excreted in ten months was fifty pounds and ten ounces. A full and elaborate table is published for ten months, with the estimation of urea, sugar, specific gravity of urine, amount of fluid taken, and quantity of urine. At first codine in doses of from ½ to 1½ grains three times daily was given, and served to reduce the amount of sugar eliminated, but with no relief to the symptoms, which, in fact, seemed to be aggravated by the use of the substance. Various other drugs were then used, —iron and ether, iron and strychnine, and nux vomica. Nitroglycerin was then given in doses of 2 minims of a one per cent. solution, and seemed to relieve the symptoms, although the sugar was but slightly reduced in amount. Jambul was then combined with nitroglycerin, and finally given alone, the administration of the drug being followed by a great reduction in the amount of sugar, and, finally, no medicine being given, the sugar being gradually reduced until it disappeared entirely, even in a somewhat saccharine diet, while the pain and cramps and other disagreeable symptoms were entirely relieved. Although in the title of the paper Dr. Kennedy attributes the successful result of his case to the use of nitroglycerin, and the analysis of his tabulated report shows a decrease after the administration of this substance, the result is by no means permanent, and cannot be compared to the reduction in the amount of sugar and relief of the symptoms which followed the use of jambul.

MALTED FOOD IN INFANTILE DIARRHŒA.

In the *Australian Med. Journ.*, December, 1887, p. 572, Dr. Clendinnen writes that he has met with considerable success from the use of malt in the treatment of infantile diarrhœa. In a case in a child about 3 months old, there were passed very large lumps of casein, together with a quantity of green matter; the author ordered the child to be fed upon half a teaspoonful of Kepler's extract of malt added to a pint of milk. In forty-eight hours the lumps of casein, together with the green matter in the motions, had disappeared, the child slept well, and the diarrhœa

ceased entirely. In several other cases this treatment was adopted with complete success. Three ways have been suggested for adapting the casein of cow's milk to the requirements of young children,—1, peptonization; 2, the addition of barley-water; 3, the use of malt. —*Lon. Med. Rec.*, February 20, 1888.

THE DIAGNOSIS IN TREATMENT OF RUPTURED INTESTINE WITHOUT EXTERNAL WOUND.

At the meeting of the Clinical Society of London, held February 10, 1888, MR. MAYO ROBSON read a paper on the "Diagnosis and Treatment of Ruptured Intestine," basing his remarks on six cases which had come under his own observations, or under the care of his colleagues, Mr. Edward Atkinson and Mr. Ward (*Med. Press*, February 15, 1888).

In two of the cases abdominal section and enterorraphy had been performed. After a detailed description of the cases, Mr. Robson remarked that in some cases of ruptured intestine the symptoms were so distinct as to be almost pathognomonic; that other instances of abdominal injury might present most of the signs of ruptured intestine and yet recover; the shock being due to disturbance of the sympathetic nervous system, and the diminished liver dulness to distended intestine. That the usual symptoms might be entirely absent for a time, only becoming evident after some hours, and that a failure in diagnosis might occur from injury to other regions taking the attention from the abdomen. In discussing the diagnosis Mr. Robson considered the symptoms and signs separately, and then collectively, remarking on the variability of the cause, the difference in the degree of shock, the usually rapid and feeble pulse, the constant presence of vomiting and of pain, and later the usual signs of peritonitis; but especially dwelling on the importance of altered liver dulness, which when normal is almost proof of absence of perforating wound of alimentary canal, when diminished is suspicious of perforation, but when absent is almost pathognomonic of rupture. He considered the combination of symptoms most to be relied on were shock more or less severe following immediately, or within a short time, on an accident; pain in the abdomen, moderately quick and flabby pulse; vomiting of contents of stomach, followed by bilious vomit; anxious countenance and diminished or *absent* liver dulness. After showing that on expectant treatment no reliance could be placed, Mr. Robson remarked that the only hope of success lay in early operation, and consequently that a timely diagnosis was of vital importance, to attain which it would seem necessary that all cases of intra-abdominal injury should be both accurately observed and fully reported. For his own guidance he had adopted the following rule: In cases where there is a reasonable belief that the intestine is wounded, as evidenced by the history, symptoms, and signs, exploration by a small median incision must be made; when, if there be any rupture of the bowel, flatus or serum, tinged with blood or feculent material, will escape through the small peritoneal opening, which can then be enlarged, and necessary treatment adopted; but should no flatus or fluid appear and the peritoneum prove to be healthy, the small wound can be closed, and no harm will have been done.

MR. GOLDING BIRD asked whether the pain in these cases had been of a radiating nature. He mentioned that his old master, Mr. Holden, used to attach great importance to the simple fact of radiation. He asked whether much liquid was permitted after the diagnosis had been made, and especially whether the amount of ice given to the patient had been controlled. He thought that very often far too much was allowed. He remarked on the fact that in some patients the symptoms came on early and in others late, and asked whether anything was known as to the time of taking the last meal previous to the accident.

MR. BRYANT said that plenty of room remained in modern abdominal surgery for improvement. He said that Mr. Robson had rightly emphasized the absence of symptoms in many cases of severe abdominal injury. This fact ought to be borne in mind, and in his own service, he strictly enjoined that all cases of abdominal injury, however slight, should be admitted and kept under observation for at least twenty-four hours. He quoted the case of a child who had fallen down in the street, striking her abdomen against a piece of pointed wood. She presented no symptoms pointing to anything serious; to nothing, in fact, but a slight abrasion at the site of injury. In virtue of his orders, however, the child was admitted, and was seen by Mr. Bryant on the following day. She then had a little tenderness around the bruise, but no really noteworthy symptoms. It was thought to be a bruise, and nothing

serious was apprehended. A day later, however, symptoms of peritonitis manifested themselves, vomiting, abdominal distention, etc. She died on the fifth day, and at the post-mortem a rupture of the intestine was found. He observed that the difficulty lay in the diagnosis, for there could be no doubt as to the proper treatment. If, however, there were a doubt as to the exact nature of the injury, he thought an exploratory operation was allowable and desirable.

Sir Wm. MacCormac expressed the pleasure he had felt in listening to Mr. Robson's valuable and interesting paper, and that he and others had indorsed a line of treatment laid down by himself in the paper he had read before the medical society. He would have liked to hear something more definite as to the indications for surgical interference, but he believed Mr. Robson's recommendations amounted to what one so often heard in relation to hernia, that when in doubt they should operate. Mr. Robson's remarks emphasized the fact that undue importance had been attached to shock as a symptom of abdominal injury. He could remember two or three cases of serious intra-abdominal injuries, rupture, etc., where no shock had been manifested, and so it appeared to have been in Mr. Robson's cases. Their opinions on that subject would, therefore, have to be revised.

Mr. Bennett approved the plan of keeping patients with abdominal injuries under observation, but he thought twenty-four hours was not enough. He mentioned a case which came under his observation some years ago which impressed that upon his mind. A youth was struck on the right side by a cricket-ball. When seen he only complained of a little tenderness on the bruised spot, and there were absolutely no symptoms. He was, however, kept in bed for a week and carefully dieted. At the expiration of that period he was allowed to get up, but on doing so he felt faint, and shortly after being put back to bed, died. When examined after death the duodenum was found to be torn half across, and the abdomen was full of fæces. Yet no symptoms had been present. The rupture, curiously enough, did not involve the peritoneum, and there was very slight amount of peritonitis. He thought that if an operation had been undertaken, the rent might under these circumstances have been easily overlooked.

Mr. Robson, in reply, said that it was necessary to distinguish between shock due to the sudden injury and the collapse due to its after-effects. In his first case there was a remarkable absence of shock to be explained only by idiosyncrasy. When absorption or decomposition of the extravasated matter set in then the symptoms were rapid and violent. He suggested that it was a serious proposal to keep patients with apparently slight abdominal injuries even for twenty-four hours, much less a week, seeing the pressure on the beds at their disposal. He said he had brought the cases forward because he thought it was his duty to do so. He pointed out that even if he had kept his first case twenty-four hours, the evil could not have been averted. In reply to Mr. Bird as to the radiating pain, he said that in most of his cases the pain was of a distinctly radiating character, but only when it was caused by a direct blow. His rule of treatment was starvation. The less food and the less liquid the better. He allowed little or no ice, and always under strict control. If necessary he gave them barley-water, or injected warm water per rectum to quench the thirst. He was unable to state the exact time since the last meal had been taken in his cases, but inferred that it must have been some hours.

THE TREATMENT OF SNAKE-BITE BY AMMONIA.

Well-authenticated cases of recovery from the bite of a cobra are sufficiently rare to lend special interest to a report published by Dr. Percy Rigby, in the *Indian Medical Gazette*. The patient, a Hindu, aged 30, was bitten, in the presence of a hospital assistant, by a young cobra two feet long, the wounds of both fangs being visible; four hours later he was brought to the dispensary, unable to stand or raise his head, gasping for breath, with copious salivation and bronchorrhœa, and full, soft pulse; the bite had been inflicted on the back of the hand, and the hand and forearm were much swollen. A solution of permanganate of potassium (five per cent.) was injected in the situation of the bite, the salt in powder was rubbed into the wound, and a draught containing liq. ammoniæ, 20 minims, was given; the patient grew worse, and was seized with convulsions. The draught was repeated in half an hour, but when two hours had passed the patient appeared to be sinking fast; a hypodermic injection of liq. ammoniæ, 15 minims, with an equal quantity of water, was given, and repeated in half an hour; finally, several convulsive seizures occurred, the res-

pirations sank to 6, and the patient seemed *in articulo mortis;* he was, however, given another draught containing ammonia, and in ten minutes began to rally, and in about three hours more was out of danger. The next day the temperature was 101.2° F., and the arm was much swollen; no ulceration was produced by the hypodermic injections. A second case was mentioned in which the injection of strong ammonia and tight bandaging of the leg was effectual against the bite of *Dabria elegans.*—*Brit. Med. Journ.*, March 3, 1888.

COMPARATIVE STUDY OF THE ACTION OF VARIOUS DRUGS ON THE HEART.

At the Italian Medical Congress, held at Pavia, PROFESSOR RUMMO and DR. FERRANINI read a paper on this subject. They have made experiments in the laboratory attached to Professor Cantani's clinic, on frogs, toads, Crustacea, guinea-pigs, rabbits, and dogs, with the view of determining the precise mode of action of those drugs which have a definite effect on the heart. They used the graphic method throughout, and the drugs which they experimented upon were digitalis and digitalin, strophanthus and strophanthin, upas antiar, helleborin, erythrophlæine, oleander, sparteine, caffeine, adonidin, and convallamarin. They observed that these drugs first diminished the frequency of the pulsations and augmented the blood-pressure in all animals (homothermic and heterothermic), whereas in a second stage, especially when the doses were toxic, they disordered the rhythm of the heart and diminished the blood-pressure. In a third stage, a diastolic pause of the cardiac action, after the use of all the drugs, supervened in heterothermic animals, whereas in the homothermic ones, the heart stopped in the systolic phase only after certain drugs, such as digitalin, strophanthus and strophanthin, helleborin, erythrophlæine, upas antiar, oleander; adonidin and convallamarin, however, produced in these animals, even in small doses, a diastolic pause of the cardiac action. Sparteine and caffeine, on the other hand, had no great influence on the blood-pressure. As regards the mode of action of the drugs used, it must be remarked that strophanthus and strophanthin, helleborin, digitalis, erythrophlæine, upas antiar, and oleander chiefly influenced the heart-muscle, and, in the second place, the cardiac nerves. Adonidin and convallamarin simultaneously influenced the cardiac muscle and the cardiac nerves, whereas sparteine, and particularly caffeine, chiefly affected the cardiac nerves, and the heart-muscle little, or not at all. All those drugs which augmented the blood-pressure did this by means of a combined mechanism, as they simultaneously increased the systolic energy of the heart, and produced narrowing of the peripheral blood-vessels by irritation of the vaso-motor centres. The experimenters, furthermore, tried to answer the question whether those drugs which had a particular influence on the cardiac muscle had also an effect on the striped muscles in general, and whether those which influenced the cardiac nerves could also produce a similar effect on the whole nervous system. They found that only those drugs which chiefly influenced the cardiac nerves produced also, to a certain extent, disturbances in the nervous system in general.—*Brit. Med. Journ.*, March 3, 1888.

ACETANILIDE IN SMALLPOX.

A very interesting and important series of experiments have been recently made regarding the value of acetanilide (antifebrin) in smallpox. The experimenter, DR. HERMANN HAAS, used the drug in seven severe cases. The drug was used right along, during the whole disease, in doses of 2 grammes (31 grains) daily, given in solution, a tablespoonful at a time, every hour from ten in the morning until nine o'clock at night. The results of his observations were as follows:

1. Without exception he found that a systematic use in severe smallpox of antifebrin was highly beneficial. It reduces the temperature during the critical hours of the afternoon from 1° to 2° C., and sometimes even down to the normal temperature, so that sometimes the fever seems to have taken an inversed type (rising in the morning and falling in the afternoon). That these symptoms were alone due to the use of antifebrin was proved by the fact that, as soon as its use was discontinued, the fever again assumed its usual type,—viz., falling in the morning and rising in the afternoon. Comparatively small doses will cause this fall of temperature in the afternoon.

2. Greatly relieves and lightens all the accompanying symptoms of the fever.

3. Acts also as a nerve tonic and anæsthetic, as it gives the patient sleep and freedom from the miserable feeling of utter hopelessness to which he is usually subjected.

4. By means of its power to constantly reduce the fever, it seems beneficially to influence the threatened degeneration of the parenchyma and strengthens the organism, so that it can withstand the long-continued fever better.

5. Does not in the least impair digestion or irritate the stomach, so that under its use the appetite soon becomes normal. The stubborn diarrhœa is sooner conquered by means of opiates than when other antipyretics are being used.

The chills, which several physicians have observed to follow the use of antifebrin, only occurred, in a few instances, after very large doses. Anæmic patients are more subject to them than others.—*Prager Med. Wochenschrift*, January 4, 1888.

THE ABORTIVE TREATMENT OF SYPHILIS.

At the meeting of the Medical Society of London, held February 20, 1888, MR. JONATHAN HUTCHINSON, F.R.S., read a paper on the abortive treatment of syphilis, of which the following is an abstract (*Lancet*, February 28, 1888):

The paper commenced by a general statement that the author's recent experience had been that when mercurial treatment was begun early for the indurated chancre, no secondary symptoms followed. He was in the habit of assuring patients that if they would persevere with the mercury they would escape the occurrence of sore throat and eruption. Year by year his confidence in the practicability of suppressing the secondary stage increased. By the term "abortive treatment" he meant a treatment which aimed at this result. It was not to be considered as synonymous with curative in its strongest sense, and it certainly did not imply annihilation of the malady. It was quite possible that after a successful abortive treatment and an entire omission of all secondary phenomena the patient might yet have tertiary symptoms. Tertiary symptoms must, he thought, be considered apart, for there was a sense in which it might be contended they were not syphilis. He defined the stages of the disease as being the primary before the blood became contagious, the secondary while it was contagious, and the tertiary after it had ceased to be so. Probably a treatment begun only after definite symptoms, such as induration of the chancre, have shown themselves, was begun too late to prevent that contamination of all the tissues from which, after a long interval, tertiary phenomena might result. The author defended the terms "specific" and "antidote" in reference to the use of mercury in syphilis. He believed that the mineral was antagonistic to the life of the microbe which in all probability existed as the cause. The problem for the practical surgeon was how best to use mercury so as to secure the death of the microbe. He admitted that certain facts seemed to prove remarkable tenacity of life in the parasite. Thus, for instance, mercury might be given for six months, and all symptoms of the secondary stage during that period be suppressed; and then, if the drug were suspended in the course of a few weeks, a modified rash might show itself. The facts recorded by the older surgeons (especially by Mr. Judd) were quoted in proof that short courses attended by ptyalism, such as used to be employed, did not procure the abortion of the secondary stage. It was contended that the investigation on this point must begin anew now that we had adopted the practice of giving small doses over very long periods and avoiding salivation. The author's practice had for long been of this latter kind, and had consisted in the administration of single-grain doses of gray powder, three, four, five, or six times a day, according to the case. The following facts were appealed to in proof of the antidotal power of mercury in reference to syphilis: that it always caused the induration of a hard chancre to melt away; that it always caused the secondary eruptions to fade; and that it always modified greatly, if it did not wholly prevent, the evolution of the secondary stage when given before it commenced. To prevent the tertiary stage, it might be necessary to use the antidote before there was an infection of the blood,—that is, probably, before the induration of the sore and adjacent glands. This consideration introduced the question as to the stage at which mercury ought to be prescribed. The author's practice had hitherto been never to give it until, by the induration of the sore, he felt sure of the diagnosis, and never to wait longer. It had, however, often occurred to him that it was perhaps not for the patient's benefit to wait even so long as that; but, on the contrary, having regard to the serious import of syphilis and the comparatively innocent nature of the drug, it might be well to give it in all suspicious sores. He was aware that much might be said on both sides in reference to this proposal, and it would only be

in a minority of cases, where the patient was well informed as to the nature of his risks and willing to persevere for a long time, that it would be feasible. He wished, however, to express very strongly his belief that the efficacy of mercury as an antidote was much influenced by the period at which it was commenced, as well as by the length of time during which it was taken. Mr. Hutchinson concluded his paper by disclaiming strongly any wish to claim for himself or his own mode of treatment any superior efficacy over that adopted by others. He believed that most were at the present day attempting abortive methods, although hesitating to adopt that name. He wished to show that such hesitation was groundless, and that really the abortion of the disease—*i. e.*, the suppression of its natural stages—was what we ought definitely to aim at. He believed that future investigations as to the efficacy of treatment would be facilitated by the use of outspoken terms such as those suggested. His paper had been written, he said, chiefly in order to elicit discussion, and he submitted the following questions to the society: 1. What plan of treatment is most successful in suppressing the febrile or secondary stage of syphilis? 2. Does the suppressal, complete or partial, of this stage tend to prevent what are called "reminders," —*i. e.*, those minor, and for the most part local, symptoms which often intervene between the febrile stage and the tertiary phenomena? 3. Are those in whom the febrile stage has been aborted by artificial means more or less liable than others to tertiary phenomena? 4. Is it desirable to attempt, by anticipatory treatment (mercurial), to abort the phenomena of the primary stage? 5. If it be possible by the anticipatory treatment of undeveloped chancres to prevent the primary phenomena, what will the influence of such suppressal be on the further course of the disease?

INTERNAL USE OF ICHTHYOL.

Ichthyol is fast gaining favor among the profession. Its disagreeable odor and taste have always been greatly against its internal use, but the beautiful pills recently prepared entirely disguise both, and it is only the most delicate stomachs which are not able to endure the drug.

There are a large number of diseases where the internal use of ichthyol is to be recommended.

The drug has not alone been found of value in rheumatic and gouty diseases, but also in a host of skin-diseases. In the different forms of lupus and lepra, also in eczema and herpes, ichthyol has been used both internally and externally with great success.

In all capillary enlargements, red nose (roseola), chronically-inflamed pharynx, hyperæmia of the larynx, indeed also in asthma, digestive troubles, pelvic neuralgia, and ischias, ichthyol has proved itself to be a most valuable remedy.

It is really unfortunate for ichthyol that so new a medicine should be recommended in so many diseases. It seems as if one were trying to find in it a "cure-all," and on this account many practitioners view it with disfavor.

Geheimrath von Nussbaum, of Munich, is one of the few practitioners who has made this drug a special study. In an interesting article written to the *Zeitschrift für Therapie* of January 15, 1888, he states that he has found ichthyol efficacious in all diseases in which there is hyperæmia and an enlargement of the capillaries.

As the drug contracts these enlarged capillaries it can be easily understood why it acts so beneficially upon asthmatic complaints, digestive troubles, and those neuralgias of the pelvis which are undoubtedly more or less due to circulatory anomalies and vascular enlargements. This also explains why ichthyol is at times used without avail in similar diseases.

Dr. von Nussbaum's experiences show that the drug is most successful in that class of painful neuralgias of the bones, joints, and muscles which is accompanied by difficulty in moving, and which for months had been treated with other remedies. In such cases ichthyol effected a cure in a couple of weeks, indeed, in a few days the disease was practically mastered.

In cases of gouty inflammation, where the motion of the limb or joint had been greatly impaired, and every movement was accompanied by a cracking sound, as soon as the ichthyol treatment was commenced the pain first subsided, and soon afterwards the stiffness gradually disappeared, and movements became both possible and painless.

Concerning the dose, 2 to 5 pills may be given twice a day from the very beginning of the treatment. Each pill contains .1 gramme (1½ grains), and so the patient is given ½ gramme ($7\frac{7}{10}$ grains) every morning and evening. If full action is not obtained by the above dose, it may be increased to 12

pills every morning and evening. As soon as the desired effect has been obtained the drug should at once be discontinued, in order that the patient may not become used to it. If, however, after some months the symptoms reappear, the drug may again be used. The treatment should not, however, begin with small doses, but the final dose given during the previous treatment should at once be started with; for instance, 10 pills every morning and evening, as small doses will have but little effect.

No harmful action of the drug was ever observed to follow even the largest doses.

Dr. von Nussbaum, for experiment's sake, frequently took as many as fifty pills a day without experiencing any unpleasant symptoms whatever.

TEREBINTHINATES.

Therapeutists have lately evinced a revival of interest in the terebinthinates, one result of this being seen in the extended use of terebene in bronchial affections. Dr. Prosser James (*Lancet*, March 10, 1888) draws attention to two other allied products, more particularly as to their use in disease of the respiratory mucous tract. These are (1) the essential oil of the mountain pine and (2) hydrate of terpin.

1. The *Mugho*, or *Mountain Pine*, is the *Pinus pumilio* of Lambert, and from which exudes the once-prized Hungarian balsam. By distillation of the young branches with water a volatile oil is obtained, long known as "oleum templinum," or "Krummolzöl." This is the most potent agent in the so-called "pine-cure" practised at Reichenhall and other German spas. At these resorts the vapor of the water, as it escapes into the inhalation-rooms, is medicated with the volatile oil. The pine-baths at these spas are not medicated with the Krummolzöl, but with a much cruder product,—viz., an extract obtained by evaporating a decoction of the wood and branches, and perhaps also the residue after the distillation of the oil. Moreover, the baths are mostly employed in rheumatism, gout, and other affections for which thermal baths are suited, while the inhalations are chiefly used in diseases of the respiratory tract. By improved apparatus, and greater care in the selection of the material, a much finer product is now obtained,—in fact, a very pure essential oil, oleum pini pumilionis; and this it is which has lately been imported under the fanciful name "pumiline." This essential oil possesses in a high degree the odor of the most fragrant variety of the pine, and, moreover, is less irritating than other fir oils. Sprinkled or sprayed about a sick-room it imparts a lasting and grateful fragrance to the air, which is not oppressive, and it seems to be disinfectant; or it may be thrown into a little warm water and allowed to evaporate; or it may be used by a steam-inhaler (Dr. Lee's or Siegle's) or a hand-ball atomizer. Either of these methods may be utilized for the purpose of obtaining an atmosphere laden with pine odors as a substitute for that of Arcachon, Reichenhall, or Bournemouth. The oil can also be taken internally, and is admirably adapted for inhalation. For prolonged inhalation a few drops may be put in a suitable respirator, and will be preferred by most patients to other inhalants. For short steam inhalations ten to twenty drops may be put into any common inhaler half full of water at 150° to 160° F. and the vapor inhaled. It is, however, much better to diffuse the oil through water by magnesia, powdered silex, or prepared talc, in the proportion of forty to sixty minims of oil to a scruple of magnesia and an ounce of water. A teaspoonful of this mixture added to half a pint of cold water is to be stirred in the inhaler, and then, half a pint of boiling water being added, a convenient temperature is obtained; as it cools, a little more boiling water can be added if it is desired to prolong the inhalation. This medicament will be found much milder than the vapor olei pini sylvestris (B. P.), and may therefore be employed when the official formula is found too irritating. It is a very mild stimulant to the mucous membrane, and an agreeable remedy for inhalation in relaxation, congestion, and chronic catarrhal affections of the respiratory tract. Oleum pini pumilionis is also an excellent addition to other inhalations, such as creasote and various essential oils. It disguises the disagreeable odor* of some and imparts its own fragrance to others. It also mixes well with eucalyptol and other inhalants. *Internally*, the ordinary dose is from 1 to 5 minims. Small doses can be taken in lozenges or on a lump of sugar, as terebine is often taken, or a mixture can be made with tragacanth, etc., or larger doses may be given in capsules. In the stomach it acts as a carminative. It is quickly absorbed, and proba-

* The author has sometimes used oleum pini pumilionis to disguise the smell of iodoform; but the mixture should be freshly prepared, as after a few days decomposition takes place with the liberation of free iodine.

bly behaves in the blood and tissues like other terebinthinates. It is eliminated chiefly by the lungs, kidneys, and skin. It is its action on the bronchial membrane during excretion that renders its valuable in disease of this surface, being a stimulant, expectorant, and disinfectant, hence indicated in chronic bronchitis, dilatation of bronchi, bronchorrhœa, some states of phthisis, and other affections. The effect on the kidneys should not, however, be forgotten. The violet odor of the urine is produced as with some other terebinthinates, and small doses seem diuretic, but its use in diseases of the urinary passages manifestly requires care. *Externally*, sprinkled on flannel, or, better still, on spongio-piline, the oil is a cleanly, prompt, and useful stimulant and counter-irritant, and sometimes appears to possess slight anæsthetic properties.

2. *Terpin Hydrate* affords a curious contrast to oleum pini pumilionis. It has but a slight taste, is rather insoluble, has no odor, and is solid. It may be seen as small needles when it spontaneously crystallizes from a mixture of turpentine and water, or may be obtained in large rhombic crystals by allowing alcohol (three parts), turpentine (four), and nitric acid (one) to stand in shallow dishes three or four days. Terpin hydrate is only dissolved in small proportion by cold water or turpentine, but is taken up more readily by hot water, alcohol, and ether. For this reason it is best given in pills or wafer-paper. For small doses pills containing two grains each are convenient, and 1 can be taken every three or four hours. For larger doses, which should not be repeated so frequently, wafer-paper is better. An emulsion may also be made, but this is not an agreeable method. The hydrate may, however, be dissolved in warm glycerin, and after solution an equal quantity of some syrup may be added. This makes a suitable linctus. From sixteen to twenty-four grains in the ounce give 2 to 3 grains to the teaspoonful, and this dose can be taken every three or four hours. It is well to begin with these small quantities, as they are often found sufficient to affect the bronchial membrane, and they act on the kidneys. Germain Sée, Hausmann, Ferreira, Chéron, and others have given much larger doses,—10 grains, and in some cases 15. It is obvious that such doses might have a serious effect on the kidneys, and large quantities given to animals have been followed by hæmaturia. A dose of 10 grains in wafer-paper produces a feeling of fulness and heat at the epigastrium, and a sense of cerebral stimulation which in sensitive individuals may amount to giddiness. The effects of both small and large doses are analogous to those of other terebinthinates, and it is as a tasteless, odorless substitute for them that it is most useful. In restraining the cough and secretion of bronchitis, and stimulating the membrane to more healthy action, perhaps also disinfecting the sputa, it will be found useful. Germain Sée also found full doses restrain the copious sputa of some cases of phthisis, and he met with no gastric irritation after long continuance of the drug; but others have not been equally fortunate. In some instances small doses seem to increase bronchial secretion. It has also been employed successfully in hæmoptysis. Its diuretic effect has been utilized; and, in short, it has been tried in most cases in which the other terebinthinates are useful, including neuralgias. Dr. Royland seems inclined to credit hydrate of terpin with some hypnotic property, but perhaps the sleep may be attributed rather to the rapid relief to the cough, which, in the cases he reports in the *New York Medical Record*, so constantly followed the administration of the remedy.

ASTRAGALUS MOLLISSIMUS, A NEW MYDRIATIC AND NARCOTIC.

In a series of experiments published in *New Remedies*, August, 1882, Dr. Isaac Ott stated that *Astragalus mollissimus* (the "loco" plant) decreases the irritability of the motor nerves and affects the sensory ganglia of the central nervous system, preventing them from receiving impressions. It has also a spinal tetanic action, killing mainly by arrest of the heart.

It reduces the cardiac force and frequency, temporarily increasing arterial tension, but finally decreasing it. It has a stupefying action on the brain, increases the salivary secretion, and greatly dilates the pupil. The diminution of sensibility by this drug and its slowing action on the heart show that it would be an important medicinal agent. In his previous observations no experiments were made as to the local effect of the astragalus upon the pupil. Recently, on account of the great rage for mydriatics, Dr. Ott tried it upon the eye of the rabbit (*Medical Record*, February 18, 1888). The alcoholic solution of the drug, about two fluidrachms, was allowed to evaporate in the air, and the residue was rubbed up with a drachm and dropped into the eye.

In about fifteen minutes the pupil of the rabbit's eye was seen to be considerably larger, and remained so for some time. In his own eye a few drops of the above watery solution also caused dilatation of the pupil. The admixture of the vegetable tissues with the active principle of the drug prevents any extended experiments upon the pupil. It is to be hoped a chemical extraction of the active principle will soon be made. The dilatation of the pupil and the narcotic action of the drug explain the disposition of animals who have been "locoed" to mistake a rut for a larger opening in the ground, and make a great leap to avoid it.

The above effects preclude the possibility, as recently claimed, of a vegetable peptone as a cause of the toxic symptoms in animals poisoned by this plant.

LORETA'S OPERATION ON THE STOMACH.

Digital dilatation for fibrous stricture of the pylorus, which was first practised by PROFESSOR P. LORETA, of Bologna, in 1882, has already in his hands given most satisfactory results in a large number of cases. The *Riforma Medica* of February 18, 1888, contains an account of a case in which the operation was recently performed by Dr. Loreta, which is of special interest owing to the detailed way in which it is reported. In January last a man, 54 years of age, but looking much older, owing to his wasted and careworn appearance, came under the professor's care with the following history: He had been excessively intemperate both in eating and drinking, and had suffered from severe dyspepsia since 1872. In 1880 he began to be troubled with vomiting, which occurred regularly four or five hours after taking food. The stomach was visibly dilated, and a splashing sound could be heard on succussion. Microscopic examination of the vomited matters gave negative results; neither blood, starch-granules, nor sarcinæ could be detected. No tumor could be felt in the hypochondriac or epigastric regions; the abdomen yielded readily to pressure with the hand, which, however, caused a slight amount of pain. At the place where this tenderness was most pronounced, a hard fibrous cord was felt at a point corresponding to the situation of the pylorus. On January 30, after washing out the stomach with an alkaline solution, Professor Loreta made an incision along the linea alba from the xiphoid cartilage to the umbilicus, and exposed the stomach, which was drawn partly out of the wound and opened about midway between the greater and lesser curvatures. The index finger was then passed into the viscus in the direction of the pylorus, through which, however, it could not be pushed. A large-sized urethral bougie, and afterwards an œsophageal sound, were then passed through into the duodenum. By this means the stricture was so far dilated that the operator was able to get his finger through the pylorus and draw it over almost to the abdominal wound. The index of the left hand was then also passed through on the right as a guide. The pyloric orifice was then dilated by forcible divulsion with the two fingers, a proceeding which the tightness of the stricture rendered very difficult. Finally, the wound in the stomach was closed by continuous, and that in the abdominal wall by interrupted, sutures, and an antiseptic dressing was applied. On February 9 the wound was healed, and the patient had completely got rid of his troublesome symptoms. Digestion was perfect, vomiting had entirely ceased, and the man had lost the look of suffering which had been so marked before the operation. Dr. Maurizio Bufalini, who reports the case, says that not a single instance of relapse after Loreta's operation has yet been heard of.—*Brit. Med. Journ.*, March 3, 1888.

EXTERNAL APPLICATION OF SULPHUR IN SCIATIC NEURALGIA.

A few years ago, in the Therapeutical Society of Paris, a discussion arose as to the best treatment for sciatica. Of course, numerous methods were brought forward. The most novel, however, was one suggested by DR. HENRI GNÉNEAU DE MUSSY. This treatment, said Dr. Mussy, had been used in England with remarkable success.

The method simply consisted in laying the affected limb or part in a bed of the flowers of sulphur, which was spread upon a cloth. How the sulphur acted was not known, but it was noticed that the urine was strongly odorous of sulphuretted hydrogen.

The treatment was followed by speedy relief, and, as a rule, the patient was entirely free from pain in less than twenty-four hours.

Dr. Henri Gnéneau de Mussy told of a case where the valet of a certain ambassador had been seized with a most violent attack of neuralgia. On the following day the ambassador was to leave the city on a long journey, and was in great distress for fear that his ser-

vant could not accompany him. Dr. de Mussy having been called, immediately prescribed the external application of flowers of sulphur, and on the following morning the recovery was complete, and the servant was able to undertake the journey, to the great satisfaction of his master.

Dr. L. Duchesne has recently adopted this treatment, and its use has been always attended with marked success.

In an article on the subject in the *Journal de Médecine* for January 15, 1888, Dr. Duchesne tells, among others, of the following case:

A lady, aged about 48, and of good constitution, had been for some time past a most horrible sufferer from frequent and violent attacks of sciatica. She had tried innumerable remedies without ever finding any lasting relief.

Dr. Duchesne at once made an application of the flowers of sulphur to the affected parts. The limb was embedded in the drug and covered with a cloth. In the morning, much to the patient's satisfaction, the neuralgia had entirely disappeared. Several years have elapsed, but there has never been a sign of the neuralgia's returning.

The treatment is both harmless and easy, and is apparently attended with the best results, and is therefore worthy of the attention of the profession.

THE RADICAL CURE OF HYDROCELE.

At a recent meeting of the Royal Medical and Chirurgical Society, Mr. Henry Morris (*Lancet*, March 3, 1888) read a paper on the "Radical Cure of Hydrocele," with notes of two cases of excision of the tunica vaginalis, followed by recurrence of the hydrocele. The history of hydrocele and its radical treatment was briefly referred to, as showing the frequent alternations between what may be called the "closed" and "open" methods of treatment,—namely, injections on the one hand, and tents, setons, caustics, incision, and excision on the other. To be quite certain of a permanent cure the vaginal cavity must be entirely obliterated, either by firm, universal adhesion of the two surfaces of the sac, or by the filling up of the sac by granulation-tissue; but there is reason to believe that permanent cures have been effected by a simple change in the secreting capacity or character of the membrane. Although, on the whole, a more satisfactory mode of radical cure does not exist than the injection of small quantities of some irritating fluid, incision or excision is preferable under certain conditions. From a comparison of cases there does not seem to be much to choose, either as to duration of treatment or certainty of result, between injection on the one hand and incision or excision on the other. The comparative values of injections and of incision or excision were alluded to. But the author pointed out that there was no method of radical cure yet devised which was not liable to occasional failure. The circumstances under which incision or excision is to be preferred to injections are the following: 1. When we are in doubt as to the precise nature or relations of the hydrocele sac,—*e.g.*, whether the tumor is a congenital hydrocele or a hydrocele of a hernial sac. 2. In some cases in which hernia complicates a hydrocele. 3. When a foreign body in the tunica vaginalis is the cause of the hydrocele. 4. When we have reason to think that the hydrocele is caused by, or associated with, a diseased condition of the testes, for which castration would be the right treatment. 5. When, as in a case lately under the author's care, a vaginal hydrocele is associated with an encysted hydrocele of the cord and a bubonocele on the same side. The author's treatment of the cavity after incision was described. In conclusion, two cases were related of recurrence of the hydrocele after excision of the sac.

In the discussion which followed, the President referred to the difficulties surgeons often found in dealing with hydrocele. A case under his care was tapped and injected twice, and followed by recurrence. A seton was then passed through and kept in for three weeks; this likewise failed. It was laid open and dressed with lint from the bottom, causing profuse suppuration. On allowing the wound to heal, it again returned, and since then it had been treated by simple tapping.

Sir Joseph Fayrer said that hydrocele was an infinitely commoner and more grave affection in India than here; it was often the local expression of constitutional malarial taint, and it nearly always was the precursor of elephantiasis. He had seen cases in which the wall of the sac was half an inch in thickness, rigid, and containing cartilaginous plates and deposits of bone; for these he knew of no treatment but excision. His belief was that in hydroceles of moderate size the best treatment was the injection of 2 drachms of strong tincture of iodine: he had never seen recurrence after that method.

MR. WILLETT showed a case of relapsing hydrocele in a man, aged 21, who received a kick in the scrotum three years ago. He had been treated by frequent tappings with injection of iodine, without cure. Three weeks ago a portion of the tunica vaginalis was excised, and the interior of the sac was found filled up with a structure resembling mucoid polypus, and of a yellowish color. Under the microscope it showed nothing definite except fibrous tissue. His usual practice was to completely empty the sac of fluid before injecting iodine.

MR. BRYANT used as an injection a solution of 2 drachms of equal parts of the tincture and liquor iodi into an emptied sac, and he had good success with this method. He had twice incised and once excised; in all three recurrence followed, but they were all cured by subsequent iodine injection. Some cases demanded incision, such as old hæmatoceles with thickened walls, and hydroceles with thick, viscid fluid. He had employed injections of simple hot water—as hot as the finger could bear—with much success, and recommended it in those cases where iodine injections had failed, and as a measure to be tried before incision. He thought the tissues in Mr. Willett's case were organized lymph saturated with hydrocele fluid.

MR. HARRISON CRIPPS had experienced failures even when all the fluid had been drawn off and pure tincture of iodine injected.

MR. TREVES had found that where the sac had been emptied and 2 drachms of "Curling's solution" injected and left in, the failures amounted to nearly thirty per cent. After incision and excision he also found that there were twenty-five per cent. of failures. The method he now adopted was to open the tunica vaginalis and swab out the sac with crude carbolic acid, which destroyed the endothelium and set up suppuration.

MR. WALSHAM had seen several cases of failure after injection with pure tincture of iodine. He thought the only really radical cure was to stuff the sac from the bottom and allow it to granulate up. For out-patient practice he recommended simple tapping.

MR. M. SHEILD thought the gelatinous material in Mr. Willett's case might be simply fibrin, resulting from the contact of inflammatory serum with the hydrocele fluid.

MR. MORRIS, in reply, said the capriciousness of the disease was well illustrated by the oscillation of opinion of the older surgeons as to the best method of treatment. In one case he had injected very weak iodine with a successful result. He knew of no figures which would show whether the solution or the tincture of iodine were the better for purposes of injection. He failed to understand how hot water could act curatively, though he knew that it could often be injected with good effect in chronic cystitis. He imagined the material in Mr. Willett's case was exaggerated trabecular adhesion which had become œdematous.

IODIDE OF POTASSIUM IN PSORIASIS.

HASLUND, in the quarterly journal for *Dermatology and Syphilis* (Munich, No. 51), says that a Norwegian physician once told him of the remarkable success which attended the use of iodide of potassium in psoriasis. Since then Haslund has used the drug in fifty cases of psoriasis, forty of which were cured completely. The dose given was very large, being gradually increased to 40 grammes (600 grs.), and even over. The length of treatment varied in different cases from seventeen days to eleven weeks. In one case 50 grammes were given daily to a patient without producing any unpleasant symptoms. Still there are many persons who have an idiosyncrasy for the drug, and in such cases, of course, its use is prohibited. No effect worthy of notice was observed either upon the number or shape of the blood-corpuscles even when the largest doses of the drug were given. Haslund considers that this remedy is able to cure psoriasis sooner than arsenic. No influence upon the secretion of urine was observed.—*Wiener Medicinische Blätter*, No. 51, December, 1887.

COCAINE IN URETHRAL OPERATIONS.

DR. ALEXANDRO SETTIER gives in a Spanish medical journal his experience of the employment of cocaine as a local anæsthetic in operations of various kinds on the urinary organs. He has used it in nine cases of internal urethrotomy, one divulsion (forcible dilatation), two urethro-perineal fistulæ operations, one rapid lithotrity, three circumcisions for complete phimosis, and two extirpations of vegetations. In none of these eighteen cases has he observed any serious toxic symptoms such as have been described by Peck, Reich, Bellyarminoff, and Keyser. In three cases, however, the patients complained of severe headache and great dryness

of the mouth. The solutions used were generally of the strength of five or six per cent. For internal urethrotomy a variable quantity (in one case as much as 5 drachms) of the solution was introduced into the urethra, as near as possible to the seat of the structure, by means of a catheter in the form of a simple tube open at both ends. The solution was allowed to remain in contact with the tissues for twenty-five minutes before the operation was commenced. In all cases of this description the cocaine succeeded admirably, the patient feeling no pain at all except at the moment when the stricture was divided, and then only in a very slight degree. The action of the drug was much less satisfactory in the single case of forcible dilatation, but the pain lasted a much shorter time than it does in similar cases where no anæsthetic is employed. No effect was produced in the cases of urethro-perineal fistulæ. In the lithotrities, circumcisions, and the operations on preputial vegetations very good results were obtained. In the two latter classes of cases the cocaine was combined with glycerin or vaseline in the proportion of 1 to 15; this was applied over the surface of the prepuce. In one of the phimosis cases an eight per cent. solution was likewise injected under the prepuce. This, however, caused a good deal of headache. Dr. Settier remarks on the importance of keeping the solution a long time in contact with the mucous membrane of the bladder in cases of lithotrity, in order to prevent contractions of the organ taking place during the process of aspiration.—*Lancet*, February 25, 1888.

PICRONITRATE OF AMMONIUM IN MALARIAL FEVER.

In the Bulgarian *Meditzinsko Spisanïe*, Nos. 31 and 33, 1887, Dr. A. Golovina, lady physician to the Varna Town Hospital, writes that, at the suggestion of Professor Fr. Goll, of Zürich, she tried picronitrate of ammonium, in 3-centigramme pills, four times a day, in seven cases of malarial fever of quotidian type. In five the paroxysm ceased to recur (in one case from the second day of the picronitrate treatment, in three cases from the third day, and in one from the sixth). Three of the successful cases were of recent origin, and two fairly old. The quinine treatment had been previously tried in three of them (including the inveterate ones) without result. In a sixth patient, however,—a lad with quotidian fever of two and a half months' standing,—a seven days' course of the picronitrate utterly failed to arrest the paroxysms, the latter subsequently disappearing in two days under quinine (50 centigrammes twice daily). The picronitrate apparently gave negative results also in Dr. Golovina's seventh case. No unpleasant secondary effects were ever observed.—*Brit. Med. Journ.*, February 11, 1888.

CYTISIN IN MIGRAINE.

Dr. Kraepelin has found cytisin, the active principle of laburnum, and other species of Cytisus, very valuable in some forms of migraine which appear to be due to a dilated condition of the vessels, this powerful and highly-toxic substance acting as a vaso-constrictor. In the case of a young woman of hysterical tendencies, who had very violent attacks of migraine, associated with vomiting, sleeplessness, photophobia, swimming of the eyes, and unbearable hemicrania, where all ordinary remedies had proved useless, the hypodermic injection of .003 gramme of nitrate of cytisin had an immediate effect. In subsequent attacks it also succeeded, except once when an attempt was made to administer it by the mouth, when it was immediately vomited. The dose was increased ultimately to .005 gramme. Sleep could frequently, but not always, be induced by paraldehyde, in 2-drachm doses. Dr. Kraepelin found that cytisin had a negative, sometimes even an injurious, effect in cases where the migraine was accompanied by a good deal of spasmodic action, so that it is only to be recommended in migraine of a paralytic type.—*Lancet*, March 3, 1888.

THE TREATMENT OF TROMIC SPASMODIC TORTICOLLIS BY STRETCHING THE SPINAL ACCESSORY NERVE.

In the *Brit. Med. Jour.* for February 4, 1888, Mr. Frederick Page reports the following case:

On April 26, 1887, D. L., aged 24, a strong, muscular laborer, was admitted, under his care, with the following history: While engaged last December in a rough game of football, he was thrown, and fell heavily on his back, twisting his neck violently to one side. He was unable to rise, and had to be carried home, having lost the use of his limbs. He was not unconscious. His head was twisted to the right side. During the night he regained the power of using his legs. In two days the wry-neck had passed off, but his arms remained paralyzed for a fortnight. For some

days the bladder required to be relieved with a catheter. In the course of a few weeks he recovered sufficiently to be able to resume duty. While at work, about March 19, the patient struck his head violently against an iron pipe. He fell backwards to the ground, and, on rising, found that his neck was twisted as it had been for two days after his former accident. On admission, the patient was in the following condition: When at rest the right shoulder was elevated and the face turned to the right side. The deformity was evidently due to tonic contraction of the right sterno-mastoid and trapezius muscles. Any attempt made to straighten his head, a touch or movement, produced clonic spasms of the muscles named, by which the right side of the face and shoulder were almost brought in contact, his chin being at the same time drawn slightly towards the left side. Considerable pain accompanied the spasms. Rest in bed, counter-irritation, and drugs produced no effect upon the deformity. Adopting the conclusions arrived at by Dr. Sturge and Mr. Godlee "as to the class of cases in which the operation of nerve-stretching is likely to prove efficacious,"—namely, those where "the spasm is confined to the muscles supplied by one nerve only,"—this seemed a typical case for treatment by nerve-stretching. Accordingly, on June 21, six months after the first and three months after the second accident, Mr. Page cut down upon the right spinal accessory nerve, where it emerges from the sterno-mastoid on its path to the trapezius muscle, passed his finger beneath, and stretched it with considerable force. Not feeling sure that it might not be necessary, ultimately, to resort to Mr. Morgan's expedient, he adopted a plan suggested by Professor Annandale, and surrounded the nerve with a silk thread, so that, should section be found requisite, he could reach the nerve easily without opening up the wound. The next day, though the tonic contraction was unaffected, the patient expressed himself as feeling much more comfortable,—freer from clonic spasm and from pain. The wound healed readily, and, fourteen days after operation, the silk thread was withdrawn. On July 21 the patient was discharged, all clonic spasm having ceased entirely for some time. There was still, however, some tonic contraction of the sterno-mastoid, but it was decidedly less and gradually decreasing. To-day (January 14) the patient is free from deformity, in good health, and able to do his ordinary duty without inconvenience.

THE NEW METHOD OF TESTING THE REFRACTION OF THE EYE.

Mr. A. L. Roe gives the following as a simple, easily-applied, and very accurate method of testing for errors of refraction (*Lancet*, March 3, 1888):

A trial-frame is applied in the usual way, one eye excluded with a diaphragm, and the patient instructed to look steadily at a distant object. A blackened disk, perforated in the centre with a hole two millimetres in diameter, is rapidly passed across the eye to be tested in a horizontal direction by the surgeon. The patient is questioned as to the direction taken by the object: if the motion is in the same direction as that of the disk, myopia is present; if in the opposite direction, hypermetropia; if there is no apparent motion, emmetropia. The vertical meridian is then tested in the same way. If the motion is in opposite directions in the vertical and horizontal meridians, mixed astigmatism is at once diagnosed. An error of refraction having been detected, suitable lenses are gradually added and the disk used as before until there is no apparent motion of the object. The defect will then be corrected. There is a tendency to over-estimate myopia about .5 D., and to under-estimate hypermetropia .75 D. A good test object is a small picture-frame, using the vertical sides for testing the horizontal meridian, and *vice versa*. The explanation of the above phenomena will be found in Scheiner's test, of which this is apparently a modification applied to refraction.

KNIGHTS' SPUR (DELPHINIUM CONSOLIDA) IN SCROFULA.

Dr. E. I. Krasnogladoff, of Tiflis, draws attention (*Proceedings of the Caucasian Medical Society*, October 16, 1887, p. 32) to an old remedy which has been long ago forgotten by scientific therapeutics, but is still often used in popular medicine as an excellent remedy for scrofula. It is the root of a variety of knights' or larks' spur of *Delphinium consolida*, Linn. (Russ. *jivokost*, or "live bone;" that is, the plant which can call dead bones to life). A scrofulous and syphilitic lady-patient of the author's had suffered for a score of years from extremely obstinate ulcers on both feet; the ulcers began of late to grow alarmingly worse, with the concomitants of emaciation, hepatic pain, jaundice, gastric disturbance, and sleeplessness. The lady accidentally met a soldier, who at once recommended her to try the root of knights' spur, both internally,

in the form of a strong cold infusion made with *vodka* (aqua vitæ), and locally, in the shape of a decoction. Following the advice, she drank the infusion, and bathed her feet with the decoction every day for three weeks. No other means of any kind were simultaneously used. By the end of the time stated the ulcers healed and her general condition became normal. She has remained quite well ever since. Dr. Krasnogladoff mentions also several other cases of scrofula cured by knights' spur after sarsaparilla and Colbert's essence had utterly failed. On the whole he thinks that *Delphinium consolida*, a plant which is very common in some Transcaucasian regions, may prove by far superior to sarsaparilla, which is imported into Russia from afar and is sold at a very high price. Following the author's suggestion, the Caucasian Medical Society have taken the matter up, and will give the root a fair and extensive trial. The plant is not uncommon, also, in Switzerland, Germany, Austria, Alsace, etc., as Koch's "Flora" shows. *A priori*, certainly, it would not be a therapeutical fool's errand to examine its biological action on the animal system, since, being a member of the fam. Ranunculaceæ, and, in addition, belonging to the tribe of *Helleboreæ aconiteæ*, *Delphinium consolida* must, undoubtedly, contain some very powerful active principles.—*Lond. Med. Rec.*, January 20, 1888.

CREASOTE IN PULMONARY PHTHISIS.

In the *Meditzinskoĕ Obozrenīĕ*, No. 23, 1887, p. 1024, Dr. P. Bogdanovitch, of Yalna, publishes very interesting personal observations on the therapeutic value of creasote in phthisis. The writer, who has been suffering from pulmonary and laryngeal tuberculosis for about two years, had tried the drug on himself in small doses (½ grain four or five times a day) some time ago, but without appreciable benefit. After perusal of the observations of Professors Sommerbrodt (*Berlin. Klin. Wochenschrift*, No. 15, 1887) and Guttmann (*Deutsche Med. Zeit.*, No. 42, 1887), however, he again began to take creasote in gradually increasing large doses, beginning with four grains a day, and reaching, in about two months, a daily dose of forty-four grains. There took place, fairly rapidly, an unmistakable and permanent improvement in his symptoms. Fever disappeared in a week; expectoration, cough, and dyspnœa steadily decreased to a considerable degree; laryngeal spasm, which had formerly occurred once or twice every month, ceased altogether. As regards the objective signs, however, there was only some diminution of dulness over a certain area, with complete disappearance of fine crepitant râles. As to tubercle-bacilli in the sputum, they remained just as numerous as before the creasote treatment. The latter has lasted in all four months, during which period not less than four ounces and two drachms of pure creasote have been ingested. The drug must be taken in doses of about 5 grains four times daily, in the form of capsules (filled up *ex tempore*), after meals. With regard to disagreeable after-effects, Dr. Bogdanovitch observed in himself, when, by way of experiment, he took as much as 12 grains at a time, or 20 grains in the course of an hour, only giddiness, cardiac palpitation, small and accelerated pulse, general weakness, pallor, and anxiety; but all these toxic phenomena disappeared spontaneously and completely in about half an hour or an hour. On an empty stomach, however, he experienced epigastric uneasiness and pain even from small doses. Dr. Bogdanovitch resumed of late the use of creasote in order to study the effect of a six months' course. Dr. Hermann Sahli's paper on "Guaiacol as a Substitute for Creasote" seems to be unknown to him.—*Brit. Med. Journ.*, March 3, 1888.

SALICYLIC COLLODIUM AS A REMEDY FOR CORNS.

Gezow's salicylic collodium (a ten per cent. solution of salicylic acid in collodium, with addition of extract of Indian hemp for preventing pain and inflammation) has of late become an almost domestic remedy for corns in Germany, Austria, Switzerland, and certain parts of Russia, where it is sold without any medical prescription, since the preparation is regarded as a harmless one. Recently, however, Mr. E. Kampe published (*Pharmaceutische Rundschau*, 1887, No. 15) a case in which paintings with the collodium had given rise to alarming toxic symptoms apparently attributed by the writer to salicylic acid. Referring to his case, Mr. Kampe insisted on prohibition of a free sale of the remedy. In the *Farmatzevtitchesky Jürnal*, No. 19, 1887, p. 293, Mr. Ivan Binert, an apothecary of St. Petersburg, states that he also saw a similar case of a dangerous action of the collodium, but he did not hesitate a moment to ascribe the effects to extract of cannabis. Since the

latter ingredient is quite superfluous, the essential curative agent being solely salicylic acid, Mr. Binert ceased henceforward to introduce the extract into the mixture and began to prepare the collodium after the following formula, which he warmly recommends for universal adoption: ℞ collodii, 100 parts; acidi salicylici crystall., 10 parts; terebinthinæ Venetæ, 1 part; chlorophylli (for coloring purposes), q.s. M. Having sold several thousand bottles of the compound, he has never yet heard any complaints either of its ineffectiveness, or of any unpleasant accessory effects, such as pain, inflammation, or toxic action. In its present form the collodium is said to be absolutely innocuous, while, on the other hand, it forms an excellent anti-corn remedy which surpasses Unna's taffetas as well as the numberless remedies of the class.—*Lond. Med. Rec.*, January 20, 1888.

Reviews.

CHEMICAL ANALYSIS OF HEALTHY AND DISEASED URINE. QUALITATIVE AND QUANTITATIVE. By T. C. Van Nüys, Professor of Chemistry, Indiana University.

Philadelphia: P. Blakiston, Son & Co., 1888.

Nicely printed on good paper, and with exceedingly satisfactory illustrations, Van Nüys's manual, if not exactly "filling a long-felt want," is certainly a useful contribution to the literature of urinology. It is especially rich in methods for the quantitative analysis of the urine. As the preface states, "nearly all the methods employed in quantitative estimation are given in full." On the other hand, the portion assigned to qualitative analysis is not so complete as could be desired, the author having probably confined himself to the thorough discussion of the methods which he considers the best. This is, we think, unfortunate; since it is frequently most convenient when testing a doubtful specimen to have a number of reactions at one's command. The first five chapters are devoted to the properties of normal urine, and its normal and abnormal constituents, together with the chemical reactions for the same. Beginning with a discussion of the organic components of normal urine the author advances to the inorganic, and then treats of those found in a pathological secretion, devoting a chapter to the albumens and sugar. The means of distinguishing the albuminous bodies from each other are clearly explained; and to make all plain, a table of reactions is added which cannot but be of assistance to the physician interested in the recognition and significance of these bodies, still so little understood by the profession at large. For the examination for sugar the author gives the fermentation, phenyl-hydracin, Trommer's, Fehling's, and Brücke's tests, with the notable omission of the picric acid, and the indigo-carmine reactions. Next in order are remarks on the nature and recognition of other organic substances found in urine in diseased conditions, including bile, blood, leucin, cholesterin, tyrosin, lecithin, and fat.

Several of the bile tests are omitted, Ultzmann's and Oliver's being among these. Acetone and diacetic acid receive no mention whatever; certainly a grave omission.

The department allotted to qualitative analysis consists of a systematic scheme or method of procedure in the analysis of any specimen, with reference to the tests already detailed in the preceding chapters. Urinary sediments receive attention in a chapter devoted to them and filled with good illustrations; and in the following one is a scheme for the microscopical and chemical examination of any given sediment. There is also a short chapter detailing the process for investigating urinary concretions. This completes the first one hundred pages of the book, the remaining eighty being occupied by the department for quantitative analysis. After articles on filtering, evaporating, weighing, vessels for measuring, etc., the preparation of solutions for volumetric estimation is explained, and the quantitative determination of the various normal organic and inorganic constituents treated very fully. Finally, the estimation is detailed of the amounts of substances abnormally present,—albumen, globulin, hemialbuminose, peptone, and sugar.

Correspondence.

PARIS.

(From an Occasional Correspondent.)

Professor Germain Sée's studies in stomach complaints with the new reactive called phloroglucine-vanilline are attracting considerable attention, most of the prominent physicians and physiologists attending the experiments now being made at the Hôtel Dieu. Some objections having been made as to the exact results, Professor Sée replied to them at one

of the late meetings of the Academy of Medicine. He said that he could confirm in every particular the clinical importance of the new reactive from a large number of experiments. There is not a single one of the former reactives that offers an analogy to this one. Its bright crystalline red is absolutely characteristic of hydrochloric acid in the stomach secretions. It was falsely stated that it acts also on phosphate of sodium and on acid phosphate of lime, but this was simply because the party trying it had *boiled the reactive*. The same was true of sulphide of hydrogen, which, again, will not, as stated, give any reaction when it is pure. So that the progress accomplished by the new reactive in diagnosis of stomach complaints by Professor Sée is certainly great, as we have a reactive that will certainly detect hydrochloric acid to the exclusion of all others. We have just seen a patient operated upon at the Hôtel Dieu. A long, soft rubber stomach-tube was used, to which a glass tube was adapted at the end next to the operator. The glass tube fits into the rubber tubing, and it is provided with a bulb blown about its centre. To this a short piece of rubber tubing is attached, and a Dr. Potain's siphon aspirator is applied to this end (but any aspirating syringe would do). The patient swallows the tube, one or two aspirations are made, and the stomach secretion readily mounts into the glass bulb. Only a very small quantity is needed, and in a second the patient is relieved of the tube. The patient had taken the two eggs in the morning, some two hours before. As a rule, it is best to withdraw the fluid *within an hour*. In patients who have chronic stomach complaints not much opposition is found in introducing the tube. If they are accustomed to *lavage*, none at all. The liquid obtained is thrown on a filter, and a little of it is put into a small white capsule, to which a drop or two of the reactive is added. Then it is heated up with an alcohol lamp, all being done very *carefully and slowly*, and in a moment the characteristic red crystals are deposited on the capsule. It must not be boiled or overheated. We have then a certain and sure test for hydrochloric acid in the stomach secretions, but the question arises as to *quantity*, and Professor Sée is now experimenting with other reactives, and he hopes shortly to be able to show a card of colors by which the quantity of acid can be determined. We will report later on the results of the interesting studies that we are following in Professor Germain's Sée's service at the Hôtel Dieu.

Notes and Queries.

POISONING BY ANTIPYRIN.

Antipyrin has become now to be regarded almost as a universal panacea, and is being used by the general public almost without restriction. The following case reported by Dr. Oscar Jennings (*Lancet*, February 25, 1888) is added to the number of cases—which is gradually increasing—which show that the employment of antipyrin is not without danger, even in the hands of those acquainted with its action.

Miss X., 67 years of age, came under treatment for rheumatoid arthritis, affecting chiefly the hands. Her maternal grandfather was gouty, and she has always suffered more or less from arthritic symptoms in the knee-joints. The heart is peculiar, in that it normally beats only about thirty-five pulsations to the minute. This lady has recently complained of swelling of the hands, without positive pain, but with sensations of pricking, which interfered with her usual occupation, that of preparing and classifying specimens relating to natural history. (It may be mentioned that she is a distinguished conchologist, well known in scientific circles.) Dr. Jennings recommended her to take antipyrin, which seemed to be the more indicated as she had already been relieved on a former occasion of rheumatic troubles by salicylate of sodium, which had, however, left her greatly weakened. The treatment was commenced on January 23, and for eight days she took two grammes and a half of antipyrin daily, when on the 31st she was surprised to see that she was covered with erythematous patches on the arms, and at the same time felt that her eyes were uncomfortable. The following night she scarcely slept at all; the feet were icy cold; no nausea; no giddiness. The next morning she discovered that her face was red and extraordinarily swollen. The eyelids were almost closed by the swelling, and left only a narrow slit for vision. Pushing her investigations further, she saw that the rash was general and of the color of pomegranate, arranged in patches the size of a threepenny-piece, separated one from another by intervals scarcely noticeable at first sight, but distinctly recognizable upon closer examination, and about a millimetre in diameter. The patient had no appetite, and did not attempt to eat; she only took a small quantity of tea during the day, which she passed sitting by the fire. Curiously enough,

this condition gave rise to no suffering; all that was felt was a strange sensation "as if the inside of the body was filled with ice." There was but little itching. The following day the condition was as follows: the eyes, which first attracted attention, were the seat of slight catarrhal conjunctivitis,—already, however, on the decline. There was irritation of the nasal fossæ, and hoarseness of the voice. Indeed, one might have thought of intoxication by iodide. The puffiness and swelling of the face had partly subsided, but the rash remained on the trunk and extremities. The pulse was twice as fast as usual, 96 to the minute; but notwithstanding this, for the patient, almost febrile acceleration, the temperature was lowered, the surface remaining cold. Beyond a slight buzzing in the ears, there was no other sensorial disturbance. As treatment, Dr. Jennings merely prescribed small doses of tincture of belladonna. Next day the pulse was 56. The catarrhal condition of the oculo nasal membrane was decreasing. Since then it has disappeared, and the eruption is gradually passing away. But the patient still suffers from considerable prostration and intermittent sensations of cold.

The following cases have been related to the author since this occurrence, and there is no doubt as to their authenticity:

Mrs. Y. was treated by antipyrin in order to be *radically* cured of rheumatic pains. She was ordered five grammes a day. "The second day," writes Miss X., "my friends went to see this lady, who is one of the most intelligent, one of the most witty, and one of the most charming women in Paris. They found her with her head between her hands, the elbows resting upon the knees, rocking backwards and forwards, repeating incessantly, 'I don't know what is the matter with me; I remember nothing; I am becoming like an idiot; I am going mad.' She was subsequently confined to her bed with severe gastro-enteritis for six weeks, and kept her room for three months. Lately she has improved, and has recovered her lost intelligence."

Mrs. Z. was treated by antipyrin. "Her body swelled, as did also the inside of the throat, which was obstructed to such an extent that for six hours she was threatened with suffocation. The skin was covered with red spots, without itching, and the perspiration dripped off the extremities of the fingers."

Cases of poisoning by antipyrin have been reported by Drs. Whitehouse and Barber in the *New York Medical Record*, and by Dr. Allen Sturge in the *British Medical Journal*. Dr. Barber's patient was seized with intense itching, erythema, and urticaria soon after taking a dose of 15 grains. The face swelled and the features were obliterated. The symptoms were relieved by an emetic, and after a purge the patient was restored to his usual health. Dr. Whitehouse gave 7½ grains to a child. Two minutes later there was violent epigastric pain, general urticaria, and loss of consciousness. $\frac{1}{70}$ of a grain of atropine was given, and in a few minutes the symptoms had disappeared. Dr. Allen Sturge gave only 4 grains (25 centigrammes) for the relief of migraine. Five minutes afterwards the "deadly sickness" gave way and an "expanding sensation was felt rising from the stomach upward. The eyes were suffused, tears began to flow; the breathing became hard and labored, accompanied by a feeling of suffocation." There was violent cough, profuse perspiration, urticaria on the insides of both thighs, coppery taste, metallic smell, singing in the ears, and the pulse was quick and full. Five hours after the patient was in his normal condition. Dr. Jennings's case differs from those quoted, in that the eruption, an erythematous rash, was accompanied by little if any itching, and the urticaria so characteristic of medicinal intolerance by idiosyncrasy was entirely absent. There was no diaphoresis. In his patient the tolerance was perfect until she had become saturated with the drug. Beyond the vaso-motor disturbances in the skin and mucous membranes, the most striking point in the case was the existence of so profound a modification in the nervous centres as the symptoms indicated without serious discomfort or uneasiness.

In his second communication on antipyrin Professor Germain Sée writes in the following terms of the symptoms presented by some of his patients: "Once in twelve or fifteen cases antipyrin produces—but only when it is continued for more than ten or fifteen days, and in large doses, and especially in women—an eruption having the appearance of urticaria, or of a rash upon the hands and the feet, which lasts two or three days and disappears without leaving any trace; it is a medicinal exanthem, like that of quinine." There is a vast difference between this insignificant eruption and the manifestations described above. And in certain cases, particularly in old people and in persons sensitive to the drug, it should be prescribed with the greatest circumspection. It is usual at present to put down all the untoward consequences to the score of

adulteration, but this view still remains to be proved. It is, however, certain that alarming symptoms may follow absorption of antipyrin even in small doses, and it also seems likely that these may be relieved by the administration of belladonna, and antagonized where there is real danger by the hypodermic injection of atropine.

SEVERE EFFECTS OF CASCARA SAGRADA.

Although the testimony of every one is almost unanimous as to the satisfactory and pleasant action of the fluid extract of cascara sagrada, yet its very severe and even prostrating action in a couple of cases reported by DR R. O. COTTER in the *Atlanta Med. and Surg. Journ.* (March, 1888) calls attention to the fact that even this substance cannot be used without care in its administration. The first case was that of a man 60 years of age, who was given a drachm dose at night for several days' constipation after an operation for cataract. The dose not acting, he was given the same quantity in the morning following, and the dose again repeated at noon. The bowels then began to act, and for twelve hours the purging action of the drug was so severe as to very closely resemble regular cholera morbus, and greatly prostrated the patient. But perhaps these doses were too frequently repeated, and Dr. Cotter states, and his experience will without a doubt be confirmed by others, that he has taken it himself in the same way with no unpleasant results. Then, again, he states that he prescribed a drachm dose for a lady patient at night, and a second dose was followed by a very severe action and great prostration and feebleness for three or four days.

THE MONOPOLY OF ANTIPYRIN.

A Paris medical society, some of whose members are pharmacists, has been discussing the question of the sale of antipyrin, of which a German chemist, DR. KNORR, has the monopoly. The conclusion adopted was that, as the substance dimethyl-oxiquinisin has been known since 1884,—*i.e.*, since before the name "antipyrin" was registered in France,—and as the process of its manufacture is perfectly familiar to chemists, it is open to pharmacists to dispense dimethyl-oxiquinisin prepared in France when "antipyrin" is prescribed. It was also remarked that the substance in question is exclusively used for medicinal purposes, and that, according to French law, medicines may not be patented. Considering the high price of antipyrin (an ordinary dose of which costs wholesale about three pence), and the consequent impossibility of using it as freely as might otherwise be done among poor patients, who are quite as subject to neuralgia, migraine, and other affections, over which antipyrin exerts a beneficial effect, as the wealthier classes, it is much to be desired that it should be more cheaply obtainable. A statement was made in a German journal some time ago that a cheaper method of preparing it had been discovered, but we have seen no more of this. Of course, if part of the high price of the drug is really only due to the monopoly of Dr. Knorr and to the name "antipyrin," some enterprising English or French chemist may perhaps put himself in a position to supply the same article, under its chemical or some other less formidable name, at a lower price than three shillings sixpence or four shillings an ounce, which is that at which antipyrin is now quoted.—*Lancet*, March 3, 1888.

NON-EXPLOSIVE SOLUTION OF NITRO-GLYCERIN.

PROFESSOR CHARLES E. MONROE, United States Navy, an authority on explosives, having been applied to by the editor of the *American Druggist* for certain data and information in regard to the explosibility of alcoholic solutions of nitroglycerin, has replied that a ten per cent. solution of the high explosive in question is absolutely safe and non-explosive. He further advised that such solution should be kept in tin cans similar to those in which ether and chloroform are put up. In case a very small portion of the solution be spilled at any time, it should be rendered innocuous by immediately pouring over the spot where it fell sulpho-carbonate of sodium (prepared by dissolving sublimed sulphur in a solution of sodium carbonate by the aid of heat). Where larger amounts are spilled the precautions must be more thorough. The material whereon the explosive fell, if absorbent, must be thoroughly drenched with the sulphur solution. If spilled on marble, tiles, or non-absorbent material, a cloth drenched in the sulphur solution should be used to wipe it up, and the place should afterwards be wet down with the same solution.—*National Druggist*, March 15, 1888.

THE PATHOLOGY OF URIC ACID.

Since the discovery of uric acid by Scheele, in 1776, theories have assigned to this body a variable *rôle* in general pathology. At first it was regarded solely as a "concreting" acid, formed in the kidney, which bound together the earthy matters of the urine to form a stone; hence its synonyme, lithic acid, which is still frequently applied to it. The fact that gouty deposits also contained it led Murray Forbes, in 1798, to suppose that it was formed in the general fluids of the body, and not in the kidneys. The earlier views, up to the brilliant discovery of Garrod, who first detected uric acid in the blood of gouty patients, in 1848, regarded the association of uric acid with gout as the result of physical rather than of chemical changes, and spoke of the formation of gouty tophi more as a consequence of insoluble material being deposited than of a specific inflammation leading to increased formation, by chemical changes taking place in the tissues, either generally or locally. Even at the present day evidence exists that this early view has considerable influence over the minds of some who are recognized as authorities on the subject. In fact, it is still possible to separate the teachers into two schools, the chemical and physical: the one holding that the chief relation of uric acid to gout depends upon an increased formation in the body; the other referring such relationship simply to the insolubility of uric acid and its tendency to deposit in parts of little vascularity under circumstances which retard its elimination or prevent its destruction. In England the chemical school has the larger, if not the more influential, following, owing, no doubt, to the advocacy of Garrod, Murchison, and Latham; on the Continent, however, the supporters of the physical theory are more numerous, and there is increasing evidence that their teaching is beginning to spread more widely in England. The latest addition to the teaching of the chemical school is that of DR. LATHAM, whose Croonian Lectures of 1886 explained the whole *rôle* of uric acid, so far as concerned its relationship to gout, rheumatism, and diabetes,—that is, if the whole of his hypothesis can ultimately be sustained by facts. Indeed, so far as we can judge, he is probably correct in his assumption that uric acid is formed in the body as he describes,—viz., by the conjugation of residues of glycocine with residues of urea. But we think he throws too much stress on the part played by the liver and kidney to be quite in accord with clinical experience. As is well known, he accounts for the presence of urate of sodium in the blood by the imperfect metabolism of glycocine. "Unchanged, it passes from the alimentary canal or elsewhere into the liver; there, under the action of the gland, it is conjugated with urea, and is converted into hydantoin; it then passes on to the kidneys, to be combined with other molecules of urea or biuret, forming ammonium urate, a portion of which overflows into the circulation, and is converted into sodium urate." Now, as a matter of fact, in frank gout at all events, the first appearance of the disease is not in the kidney but at the extremities, in the small joints, and it is not till repeated attacks have occurred that we usually have evidence that the kidneys are affected. Undoubtedly, in some cases, we have evidence that renal changes in the form of nephritis and lithiasis precede the arthritic inflammation, but these are commonly witnessed in the anomalous and irregular forms. In accepting Dr. Latham's views, then, with regard to the formation of uric acid, we do so with the belief that the hypothesis should be made to include the possibility of the conjugation taking place in other organs and tissues besides the kidneys. Some writers have extended the *rôle* of uric acid beyond that of association of gout, rheumatism, and diabetes, and would attribute eczema to a rush of uric acid to the skin, headache to a rush of uric acid to the brain, and it has even been stated that urate of sodium has been found deposited on the valves of the heart. We are not aware of any well-authenticated observations that have proved, like those of Garrod in acute gout, the presence of uric acid in the blood of patients suffering from eczema or from megrim. In the absence of such proof we may be excused if we hesitate to believe that uric acid is necessarily concerned in their production. With regard to the skin, we have evidence of the excessive formation in some cases of lactic and butyric acids; and with regard to many forms of headache, the altered reaction of the urine points to some diminished alkalinity of the blood as a sufficient reason; while, with respect to the deposit of uric acid on the valves of the heart, evidence is conflicting. Those deposits that we have had the opportunity of examining have, on chemical investigation, proved to consist of crystals of cholesterin.

The physical theory of gout assigns to uric acid a far humbler *rôle* than the chemical. Without denying the possibility that in gout

an excessive formation of uric acid occurs, it attributes the phenomena of the gouty seizure more to local influences, and may be thus briefly formulated. Supposing an anomalous formation (Ebstein), or an accumulation in the textures (especially the fibrous) brought about either in connection with a trophoneurosis, or, as some believe, by vital decay, some of the tissues of the body hold more uric acid than can be destroyed. In the more vascular parts this excess is washed away by the more rapid current, and appears in the blood ; while in the least vascular, the cartilages of the joints, especially those more remote, the force of the blood-current is too feeble to insure removal, and consequently an attack of gouty inflammation ensues. With repeated attacks the system gets more and more saturated with the accumulated uric acid, the larger joints become invaded, and the straight tubules of the kidneys blocked sooner or later with uracic deposit. There is much to be said in favor of this view. The facts that frank attacks of gout commence usually, unless determined to a larger joint by a sprain or other injury, in the most remote and smallest joints, and also that attacks are more frequent in limbs that have been injured or have had their activity impaired, as Ebstein has pointed out as of frequent occurrence in paralyzed persons, the joint of the paralyzed limb being always more deeply implicated than its fellow, go a long way to support the mechanical theory. Even in cases where the kidneys are affected before any arthritic outbreak occurs, the theory of stasis is sufficient to account for the phenomenon, since the deposition of the sodium urate does not occur in the proximal part of the tubule, which is the most vascular, but at the distal, which is the least. The determination of the attack to the kidneys and not to the small joints in some cases is accounted for by the physical theory by some undue acidity of the urine causing deposition of urate in the tubule, and not to an increased conjugation of the hydantoin and biuret in the vessels of the kidneys. Probably on this theory of stasis a more chemical one may be grafted, for it is very likely that diminished alkalinity of the fluids and tissues, such as is well known to occur in gout, is concerned in aiding the deposition of a substance so insoluble as sodium urate, though without the aid of some local stagnation it may be doubted whether that alone, as some writers have suggested, would be sufficient.—*Lancet*, February 11, 1888.

EMBELIA RIBES.

We have already in these columns alluded to the employment of the fruit of the *Embelia ribes* as an anthelmintic in cases of tape-worm. Mr. C. H. J. Warden has subjected the fruit of the *Embelia ribes* to an analysis (*Pharm. Journ. and Trans.*, January 21, 1888). He has isolated from it an acid which he terms provisionally embelic acid. He is not yet, however, able to state as to whether this substance is an active principle of the fruit or not, although he promises another communication as to this point, and also to give the ultimate composition of embelic acid.

ACETO-TARTRATE OF ALUMINIUM.

M. Athenstaedt has described in a French pharmaceutical journal a new salt, the aceto-tartrate of aluminium, which is a powerful antiseptic, and which has the advantage over many antiseptics of being non-poisonous. The author considers that it is an improvement on acetate of aluminium, as the latter is apt to decompose by exposure to the air, forming a subacetate which is insoluble in water. The double salt is easily prepared. It crystallizes in needles ; it is soluble in its own weight of water. When a small quantity of water is added to it a gelatinous-looking mass is formed. Its taste is not unpleasant.—*Lancet*, February 18, 1888.

THE TREATMENT OF WARTS BY THE INTERNAL ADMINISTRATION OF ARSENIC.

Mr. B. G. Pullin states in the *Bristol Medico-Chirurgical Journal* for December, 1887, that he has obtained great success in the administration of Fowler's solution twice a day in cases of warts, even when no external application was made.

ANTIPYRIN IN NOCTURNAL EMISSIONS.

Dr. Thör, of Bucharest, finds antipyrin an excellent substitute for bromide of potassium in nocturnal emissions, being free from the objection to which bromide is liable,—viz., that of producing acne. He prescribes from 7½ to 15 grains in the form of tablets just before going to bed. Again, in cases of the so-called sexual neurasthenia of Beard, the same drug has proved very useful, but larger doses are required. Dr. Thör commences with 15 grains per diem, and gradually increases this to 30 grains.—*Lancet*, February 18, 1888.

PYRIDINE TRYCARBOXYLIC ACID.

As the readers of the GAZETTE will remember, pyridine trycarboxylic acid is a crystalline body prepared by oxidizing quinine with potassium permanganate, and has been recommended as an antipyretic and antizymotic. DR. S. BRZOZOWSKI (*Louisville Med. Herald*, February, 1888) has employed this substance in typhoid fever administered in solution, 10 grains being given every three hours, and has found that it never produces any unpleasant effects. It is agreeable to the taste, the stomach retains it, and it produces no cerebral disturbance. In pneumonia he likewise believes that it is preferable to the older remedies for reducing the temperature, so also in septic poisoning. In puerperal cases he has employed it in doses of 10 grains every three hours, so far with satisfactory results.

CALYCANTHINE, A NEW ALKALOID.

Calycanthus glaucus, Willd., or Carolina allspice, is found plentifully in fields in some parts of Virginia and southward. Its purple flowers are handsome, its bark and foliage aromatic, and when the flowers are crushed the odor exhaled is like that of the strawberry. From May to August it appears in flower.

It has been highly esteemed as a domestic remedy, the leaves in the form of an infusion or decoction being given in intermittent fever and malaria with asserted benefit.

Recently Mr. E. E. Stearns, of New York City, received some of the seed of this plant, with the information that in the section from which it was sent (Cumberland Mountains, Tennessee) many cattle had been poisoned by eating them. DR. R. G. ECCLES has investigated the chemical properties of these seeds and reports his results in the *Pharmaceutical Record* for February 15, 1888. The seed contains eighteen per cent. of a bland, sweet, fixed oil; an alkaloid has been separated to the extent of about two per cent., for which the name calycanthine is proposed. The presence of pyridine has also been recognized by the author, as also the presence of a third alkaloidal body. The latter has not yet been isolated owing to the small quantity of material. As yet Dr. Eccles has succeeded only in preparing a minute quantity of sulphate of calycanthine, too small in amount for any practical experiments as to its action, but he promises a subsequent report as to the chemical and physiological characteristics of this new alkaloid.

ICHTHYOL.

Ichthyol has been tried in various diseases and with varied success. The latest, we think, is its use in leprosy. *La Presse Médicale*, of Belgium, advises daily doses of 1 grain to be given in this disease. The reader is left to infer the results of the treatment.

STYPAGE.

DR. EDWARD DE SMET, of Brussels, writes in *La Clinique* in warm praise of M. Bailly's system of "stypage," or local freezing by means of pledgets of lint steeped in chloride of methyl. This method is useful not only for operative purposes, but acts therapeutically in many nervous and other disorders. Dr. de Smet mentions a case of severe symptomatic pain in the fifth, associated with tonic spasm of the masseter, which had persisted for more than a year, and which had been treated in various ways without success, but which immediately yielded to "stypage," the pain and trismus ceasing entirely, of course to the great astonishment of the patient. Apropos of this case, M. Bailly told M. de Smet of a case of idiopathic tetanus which had lasted twenty-eight days, and which had been cured by "stypage" over the maxillæ repeated daily, together with similar applications all along the spine and over the tetanized muscles of the inferior extremities. Each "stypage" was followed by the disappearance of the tetanus and the pain, the patient being free to eat and sleep for about twelve hours. The original plan, proposed by M. Debove, of directing a jet of chloride of methyl over the course of the nerve for sciatica was cumbersome and expensive, the apparatus required costing about twenty dollars. It was also not free from inconveniences, for the refrigeration could not well be regulated, and so it sometimes proceeded too far. Now, however, similar or even better results can be obtained by a much simpler and safer method, the cost of the apparatus required—which M. de Smet understands will be ready for sale in a few days—being also very moderate. Stypage has been recently employed in France by MM. Dieulafoy, Bucquoy, Féreol, Lailler, Pozzi, Bouchard, and others, and has been found to be useful not only in neuralgic affections, but in hepatic colic, muscular pains, lead colic, chronic gout, the stabbing pains of pleurisy and phthisis, the dyspnœa of emphysema, and even in the severe pain of uterine cancer.—*Lancet*, March 10, 1888.